

**TI-73**

# **EASY WARM UPS IN PRE-ALGEBRA**

- Operations with Whole Numbers • Add and Subtract Decimals
- Multiply and Divide Decimals • Powers of Ten • Finding the GCF and LCM
  - Converting Fractions and Decimals • Ordering Fractions
  - Add and Subtract Fractions and Mixed Numbers
- Multiply and Divide Fractions and Mixed Numbers • Extending Patterns
  - Using Formulas • Finding the Percent of a Number
  - Finding the Percent One Number is of Another
  - Finding a Number When a Percent is Known • Exponents
  - Unit Conversions • Areas • Circles • Surface Areas
- Volume • Counting, Permutations, and Combinations • Probability
- Histograms • Box-and-Whisker Charts • Mean and Standard Deviation
  - Minimum, Median, Maximum, and Range • Square Roots
  - Graphing Equations • Pythagorean Theorem
  - Right Triangles • Proportions • Trigonometric Ratios

**DAVID P. LAWRENCE**

To our valued customers: This product is not returnable if shrink wrapping has been opened.

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**Calculator keys appear in boldface type throughout this resource.**

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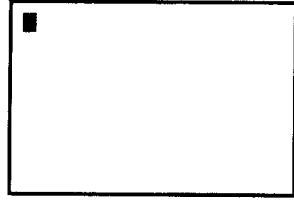
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# Warm Up 1: Operations with Whole Numbers

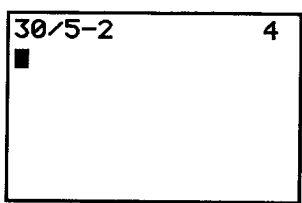
**Objective:** To perform operations with whole numbers using the TI-73

1. The graphing calculator allows you to enter an expression in such a way that the expression is displayed on the screen along with it's answer. Press **ON 2nd QUIT** to view the computation or home screen. This screen is blank. Press **CLEAR** to clear the screen.



2. Enter an expression with a "type it as you see it" approach. *The order of operations are held by the calculator.*

3. Find the answer to the expression  $30 \div 5 - 2$  by pressing **3 0  $\div$  5 - 2 ENTER**.



4. If you enter the expression incorrectly, you can re-enter the expression or press **2nd ENTRY** to recall the expression. Use the arrow keys to move the cursor. Correct errors by pressing **DEL** to delete the mistake, pressing **2nd INS** to insert missing items, or simply type over the mistake.

## Practice 1:

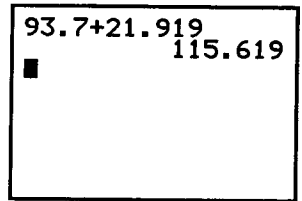
Solve.

1.  $73 \times 43 + 9 =$  \_\_\_\_\_
2.  $765 - 309 \div 9 =$  \_\_\_\_\_
3.  $1,462 + 63 \times 12 =$  \_\_\_\_\_
4.  $607 \times 312 \times 1,003 =$  \_\_\_\_\_
5.  $1,067 + 3,067 \div 39 =$  \_\_\_\_\_
6.  $1,602 - 377 \times 309 =$  \_\_\_\_\_
7.  $2,091 \div 17 - 107 =$  \_\_\_\_\_
8. Make up a problem using at least three operations to solve. Give it to a partner to solve.

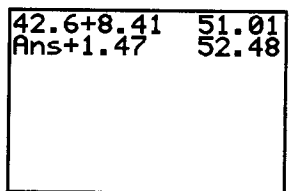
# Warm Up 2: Add and Subtract Decimals

**Objective:** To add and subtract decimals using the TI-73

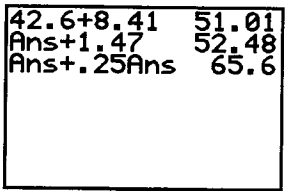
1. Enter a decimal expression and find the value. For example, clear the home screen and enter the problem  $93.7 + 21.919$  by pressing **CLEAR 9 3 . 7 + 2 1 . 9 1 9 ENTER**.



2. There may be times that you need to find a sum and then add something to the sum. This can be done using the calculator's built-in memory. For example, clear the screen and find the sum of 42.6 and 8.41 by pressing **CLEAR 4 2 . 6 + 8 . 4 1 ENTER**. Then add to the sum 1.47 by pressing **+ 1 . 4 7 ENTER**. Did you notice the "Ans" that appears on the screen?



3. You can use an answer multiple times if you need to by pressing **2nd ANS**. For example, to add 25% to the previous answer, press **+ . 2 5 2nd ANS ENTER**.



## Practice 2:

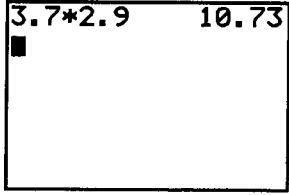
Solve.

1.  $27.06 + 7.6 =$  \_\_\_\_\_
2.  $1.006 - 0.189 + 0.45 =$  \_\_\_\_\_
3.  $0.721 - 0.045 =$  \_\_\_\_\_
4.  $2.0009 + 21.26 + 8.744 =$  \_\_\_\_\_
5.  $1.36 + .48 - .753 =$  \_\_\_\_\_
6.  $17.001 + 3.102 + 139.03 =$  \_\_\_\_\_
7.  $2.11 + 32.13 - 1.617 =$  \_\_\_\_\_
8. Make up a problem using **2nd Ans** at least three times. Give it to a partner to solve.

# Warm Up 3: Multiply and Divide Decimals

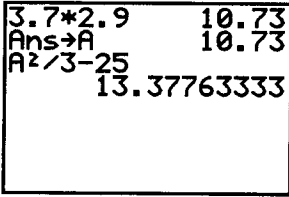
**Objective:** To multiply and divide decimals using the TI-73

1. Press **ON 2nd QUIT** to view the home screen. Press **CLEAR** to clear the screen.
2. Enter a decimal multiplication or division and find it's value. For example, enter the problem  $3.7 \times 2.9$  by pressing **3 . 7  $\times$  2 . 9 ENTER**.



*Using the stored value.*

3. To store and use the value again, press **STO► 2nd TEXT ENTER**, use the arrow keys to move the indicator box to "Done" and press **ENTER ENTER** to store the value in the memory variable A.
4. To use the stored value to make a calculation, such as the square of the value, divided by 3, minus 25, use the memory variable A. To do the calculation press **2nd TEXT ENTER**, move the indicator box to "Done" and press **ENTER  $x^2 \div 3 - 25$  ENTER**.



## Practice 3:

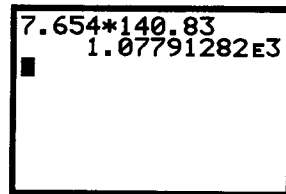
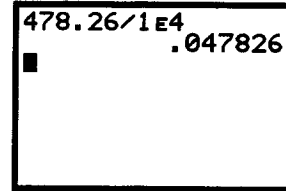
Solve. Round the answer to four decimal places.

1.  $3.07 \times 6.88 =$  \_\_\_\_\_
2.  $3.678 \div 1.233 =$  \_\_\_\_\_
3.  $5.3 \times 2.455 =$  \_\_\_\_\_
4.  $7.0004 \times 3.184 =$  \_\_\_\_\_
5.  $1.26 \div .36 =$  \_\_\_\_\_
6.  $1.2 \times 3.4 + 2.3 =$  \_\_\_\_\_

# Warm Up 4: Powers of Ten

**Objective:** To work with powers of ten using the TI-73

1. Press **ON 2nd QUIT** to view the home screen. Press **CLEAR** to clear the screen.
2. To enter an expression with a power of ten, use the **EE** key on the calculator. The **EE** key provides the ' $\times 10^{\wedge}$ ' notation in a compact form. For example, enter the problem  $478.26 \div 10^4$  by pressing **4 7 8 . 2 6  $\div$  1 2nd EE 4 ENTER**.
3. To compute an expression and have the answer in scientific notation, press **MODE  $\blacktriangleright$  ENTER CLEAR**.



*Reminder:*

Scientific notation has a decimal number multiplied to a power of ten. In addition, the decimal number has its first digit in the ones place, followed by a decimal point and the remaining digits.

4. Clear the home screen and enter the expression  $7.654 \times 140.83$  by pressing **7 . 6 5 4  $\times$  1 4 0 . 8 3**. Press **ENTER** to find the answer in scientific notation. The answer represents  $1.0779 \times 10^3$ . Remember to change the calculator back to Normal mode.

## Practice 4:

Find the answer to each expression using your calculator in Normal mode.

1.  $3.07 \times 10^4 =$  \_\_\_\_\_
2.  $.035 \times 10^3 =$  \_\_\_\_\_
3.  $55 \div 10^4 =$  \_\_\_\_\_
4.  $24 \times 10^2 =$  \_\_\_\_\_

Find the answer to each expression using your calculator in Scientific notation mode. Round each answer to four decimal places.

5.  $3.67 \div 123 =$  \_\_\_\_\_
6.  $7.4 \times 318 =$  \_\_\_\_\_
7.  $12 \times 3423 =$  \_\_\_\_\_
8.  $.00007 \times 184 =$  \_\_\_\_\_

# Warm Up 5: Finding the GCF and LCM

**Objective:** To find the GCF and LCM using the TI-73

1. Press **ON 2nd QUIT** to view the home screen. Press **CLEAR** to clear the screen.
2. Use the graphing calculator to assist you in finding the GCF and LCM of two numbers. For example, find the GCF of 84 and 60 by pressing **MATH 2 (gcd) 8 4 , 6 0 ) ENTER**.
3. To find the LCM of 84 and 60, press **MATH 1 (lcm) 8 4 , 6 0 ) ENTER**.
4. Repeat the process for the other numbers.

```
gcd(84,60) 12
```

```
lcm(84,60) 420
```

## Practice 5:

Find the GCF and LCM.

1. 21, 56      GCF = \_\_\_\_\_  
                  LCM = \_\_\_\_\_

2. 72, 45      GCF = \_\_\_\_\_  
                  LCM = \_\_\_\_\_

3. 54, 36      GCF = \_\_\_\_\_  
                  LCM = \_\_\_\_\_

4. 108, 96      GCF = \_\_\_\_\_  
                  LCM = \_\_\_\_\_

5. 69, 93      GCF = \_\_\_\_\_  
                  LCM = \_\_\_\_\_

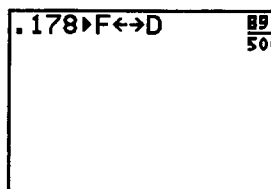
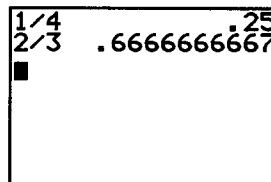
6. 84, 120      GCF = \_\_\_\_\_  
                  LCM = \_\_\_\_\_



# Warm Up 6: Converting Fractions to Decimals and Decimals to Fractions

**Objective:** To convert fractions to decimals and decimals to fractions using the TI-73

1. Press **ON 2nd QUIT** to view the home screen. Press **CLEAR** to clear the screen.
2. Use the graphing calculator to convert a fraction to a decimal by simply entering the fraction and pressing **ENTER**. For example, to find the decimal equivalent for  $1/4$  press **1 ÷ 4 ENTER**. Notice that .25 is a terminating decimal.
3. Find the decimal equivalent for  $2/3$  by pressing **2 ÷ 3 ENTER**. Notice .666666... is a repeating decimal, even though the calculator rounds the last digit displayed. Remember to use the bar above the digit or digits to represent those that repeat.
4. In addition, the TI-73 will convert a decimal to a fraction. For example, to convert .178 to a fraction, press **. 1 7 8 F<—>D ENTER**. Notice the calculator show the fraction in lowest terms.



## Practice 6:

Convert each fraction to a decimal.

- |                  |                   |
|------------------|-------------------|
| 1. $3/5 =$ _____ | 2. $1/6 =$ _____  |
| 3. $7/9 =$ _____ | 4. $6/11 =$ _____ |

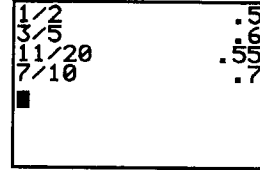
Convert each decimal to a fraction.

- |                  |                   |
|------------------|-------------------|
| 5. $.85 =$ _____ | 6. $.875 =$ _____ |
| 7. $.55 =$ _____ | 8. $.88 =$ _____  |

# Warm Up 7: Ordering Fractions

**Objective:** To order fractions by converting to decimals using the TI-73

1. Press **ON 2nd QUIT** to view the home screen. Press **CLEAR** to clear the screen.
2. To order fractions from least to greatest, use the graphing calculator to convert the fraction to a decimal. Order the decimals and you will have the corresponding order for the fractions.
3. For example, order the fractions  $1/2$ ,  $3/5$ ,  $11/20$ , and  $7/10$  from least to greatest. First, find the decimal for  $1/2$  by pressing **1 ÷ 2 ENTER**. Repeat for the additional fractions. You might want to write each decimal equivalent as you go along.
4. Then order the decimals from least to greatest. The order is .5, .55, .6, and .7. The corresponding fraction order would be  $1/2$ ,  $11/20$ ,  $3/5$ , and  $7/10$ .



## Practice 7:

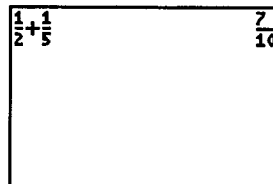
Order the fractions from least to greatest by converting the fractions to decimals.

1.  $1/3, 1/2, 3/10, 2/5 =$  \_\_\_\_\_
2.  $1/4, 3/8, 3/5, 5/12 =$  \_\_\_\_\_
3.  $8/3, 12/5, 19/8, 11/4 =$  \_\_\_\_\_
4.  $4/9, 6/7, 9/20, 7/15 =$  \_\_\_\_\_
5.  $3/4, 2/3, 7/10, 3/8 =$  \_\_\_\_\_
6.  $5/2, 21/8, 7/5, 7/3 =$  \_\_\_\_\_

# Warm Up 8: Add and Subtract Fractions and Mixed Numbers

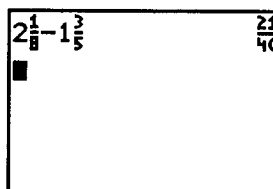
**Objective:** Add and subtract fractions and mixed numbers using the TI-73

1. Press **ON 2nd QUIT** to view the home screen. Press **CLEAR** to clear the screen.



2. You can add and subtract fractions easily on the TI-73 graphing calculator. For example, add  $1/2 + 1/5$  by pressing **1 b/c 2 ► + 1 b/c 5 ENTER**. The fraction  $7/10$  is displayed.

3. You can also add and subtract mixed numbers on the graphing calculator. For example, subtract  $2 \frac{1}{8} - 1 \frac{3}{5}$  by pressing **2 UNIT 1 ► 8 ► - 1 UNIT 3 ► 5 ► ENTER**. The fraction  $21/40$  is displayed.



## Practice 8:

Solve.

1.  $2/3 + 2/9 =$  \_\_\_\_\_

2.  $5/6 - 1/2 =$  \_\_\_\_\_

3.  $11 \frac{3}{5} + 13 \frac{4}{5} =$  \_\_\_\_\_

4.  $3/10 + 1/2 =$  \_\_\_\_\_

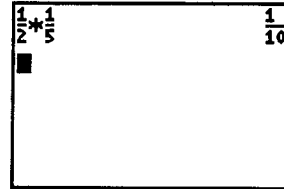
5.  $1/2 - 1/3 =$  \_\_\_\_\_

6.  $11 \frac{1}{3} - 5 \frac{2}{9} =$  \_\_\_\_\_

# Warm Up 9: Multiply and Divide Fractions and Mixed Numbers

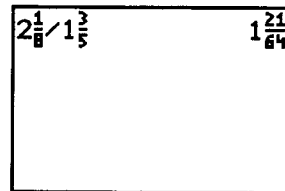
**Objective:** To multiply and divide fractions and mixed numbers using the TI-73

1. Press **ON 2nd QUIT** to view the home screen. Press **CLEAR** to clear the screen.



2. You can multiply and divide fractions easily on the TI-73 graphing calculator. For example, multiply  $\frac{1}{2} \times \frac{1}{5}$  by pressing **1 b/c 2 ► × 1 b/c 5 ENTER**. The fraction  $\frac{1}{10}$  is displayed.

3. You can also multiply and divide mixed numbers on the graphing calculator. For example, divide  $2 \frac{1}{8} \div 1 \frac{3}{5}$  by pressing **2 UNIT 1 ► 8 ► ÷ 1 UNIT 3 ► 5 ENTER**. The mixed number  $1 \frac{21}{64}$  is displayed.



## Practice 9:

Solve.

1.  $\frac{2}{3} \times \frac{2}{9} =$  \_\_\_\_\_

2.  $\frac{3}{10} \times \frac{1}{2} =$  \_\_\_\_\_

3.  $\frac{5}{6} \div \frac{1}{2} =$  \_\_\_\_\_

4.  $\frac{1}{2} \div \frac{1}{3} =$  \_\_\_\_\_

5.  $5 \frac{1}{3} \div 1 \frac{2}{9} =$  \_\_\_\_\_

6.  $1 \frac{3}{5} \times 3 \frac{4}{5} =$  \_\_\_\_\_

# Warm Up 10: Extending Patterns

**Objective:** To extend patterns using the TI-73

1. Press **ON 2nd QUIT** to view the home screen. Press **CLEAR** to clear the screen.
2. Extend an arithmetic pattern on the graphing calculator. For example, the pattern 3, 7, 11, ... can be extended by noticing that each term is 3 more than the previous term. Find additional terms by pressing **1 1 + 3 ENTER + 3 ENTER + 3 ENTER**. Or you can press **1 1 + 3 ENTER + 3 ENTER ENTER**. Continuing to press **ENTER** will repeatedly add three.
3. You can also extend a geometric pattern on the graphing calculator. For example, the pattern 2, 8, 32, ... can be extended by noticing that each term is 4 times the previous term. Find additional terms by pressing **3 2 × 4 ENTER × 4 ENTER × 4 ENTER**. Continuing to press **ENTER** will repeatedly multiply by four.

11+3	14
Ans+3	17
Ans+3	20

32*4	128
Ans*4	512
Ans*4	2048
■	

## Practice 10:

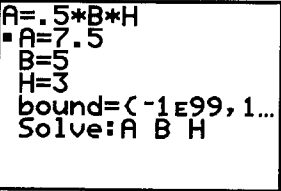
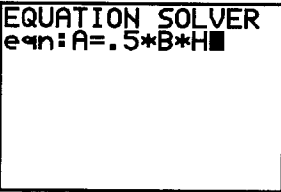
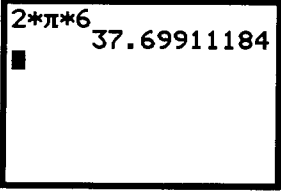
Extend the following patterns.

1. 62, 56, 50, \_\_\_\_, \_\_\_\_, \_\_\_\_
2. 147, 137, 127, \_\_\_\_, \_\_\_\_, \_\_\_\_
3. 243, 81, 27, \_\_\_\_, \_\_\_\_, \_\_\_\_
4. 7, 13, 19, \_\_\_\_, \_\_\_\_, \_\_\_\_
5. .004, .04, .4, \_\_\_\_, \_\_\_\_, \_\_\_\_
6. 5, 15, 45, \_\_\_\_, \_\_\_\_, \_\_\_\_

# Warm Up 11: Using Formulas

**Objective:** To solve formulas using the TI-73

1. Press **ON 2nd QUIT** to view the home screen. Press **CLEAR** to clear the screen.
2. Calculate an answer to a formula on the graphing calculator. For example, the formula for the circumference of circle is  $C = 2\pi r$ , where  $r$  is the radius of the circle. Find the circumference of a circle with a radius of 6 feet by pressing **2 × 2nd Π × 6 ENTER**. In this calculation, the  $\times$  symbols are not necessary, but it is a good practice to include them. The circumference is about 38 feet.
3. Another way to solve a formula on the TI-73 is to use the solver. The formula for the area of a triangle is  $A = .5 b h$ , where  $b$  is the base and  $h$  is the height. Find the area of a triangle with a base of 5 inches and a height 3 inches by pressing **MATH 6 (Solver) ▲ CLEAR 2nd TEXT ENTER ▼ ▼ ▼ ENTER ▼ ENTER . 5 × 2nd TEXT ► ENTER ▼ ▼ ▼ ▼ ENTER × 2nd TEXT ► ► ► ► ► ► (H) ENTER ▼ ▼ ▼ ▼ ENTER**. Then, press **ENTER ▼ 5 ENTER 3 ENTER ▼ ENTER**. The area is 7.5 square inches.



## Practice 11: Use the following formulas on your graphing calculator.

1. The formula for the height of an equilateral triangle is  $H = \sqrt{3} s \div 2$ , where  $s$  is the length of a side. Find the height of an equilateral triangle with a side of 4 inches. \_\_\_\_\_
2. The formula for the volume of a cone is  $V = A \cdot H \div 3$ , where  $A$  is the area of the base and  $H$  is the height of the cone. Find the volume of a cone with height of 4 feet and an area of 20 square feet. \_\_\_\_\_
3. The formula for the volume of a rectangular box is  $V = l w h$ , where  $l$  is the length,  $w$  is the width, and  $h$  is the height. Find the volume of a rectangular box with a length of 5 feet, a width of 3 feet, and a height of 2 feet. \_\_\_\_\_
4. The formula for the area of a rectangle is  $A = b \cdot h$ , where  $b$  is the length of the base and  $h$  is the length of the height. Find the area of a rectangle with a 7 inch base and 4 inch height. \_\_\_\_\_

# Warm Up 12: Finding the Percent of a Number

**Objective:** Find the percent of a number using the TI-73

1. Press **ON 2nd QUIT** to view the home screen. Press **CLEAR** to clear the screen.
2. You can easily find the percent of a number on the graphing calculator. For example, find 40% of 60 by pressing **4 0 % × 6 0 ENTER**. Notice that 40% of 60 is 24.
3. Another way to find 40% of 60 is to convert the 40% to a decimal and then multiply. The decimal equivalent for 40% is .4. Find 40% of 60 by pressing **. 4 × 6 0 ENTER**.

<b>40%*60</b>	<b>24</b>
---------------	-----------

<b>.4*60</b>	<b>24</b>
--------------	-----------

## Practice 12:

Find the percent of a number.

1. 25% of 80 = \_\_\_\_\_
2. 30% of 30 = \_\_\_\_\_
3. 60% of 120 = \_\_\_\_\_
4. 16% of 12.5 = \_\_\_\_\_
5. 80% of 25 = \_\_\_\_\_
6. 75% of 48 = \_\_\_\_\_

# Warm Up 13: Finding the Percent One Number is of Another

**Objective:** To find the percent one number is of another using the TI-73

1. Press **ON 2nd QUIT** to view the home screen. Press **CLEAR** to clear the screen.
2. Find the percent one number is of another using the graphing calculator. For example, to find what percent of 12 is 3 press **3 ÷ 1 2 × 1 0 ENTER**. In this calculation, the calculator will follow the order of operations and will perform the division first and the multiplication second. Notice that 3 is 25% of 12.
3. Another way to find what percent of 12 is 3 is to perform the division and then convert the decimal to a percent. Find what percent of 12 is 3 by pressing **3 ÷ 1 2 ENTER**. Now convert the .25 to a percentage of 25%.

$3 \div 12 * 100$	25
-------------------	----

$3 \div 12$	.25
-------------	-----

## Practice 13:

Find what percent one number is of another.

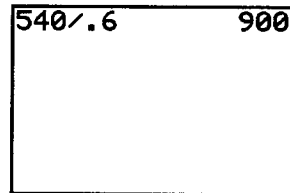
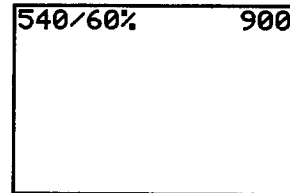
- |  |  |
|--|--|
| 1. 29 is what percent of 58?<br>_____  | 2. What percent of 1.2 is .336?<br>_____ |
| 3. What percent of 60 is 48?<br>_____  | 4. 88 is what percent of 55?<br>_____    |
| 5. 27 is what percent of 162?<br>_____ | 6. 50 is what percent of 800?<br>_____   |



# Warm Up 14: Finding a Number When the Percent is Known

**Objective:** To use the TI-73 to find a number when the percent is known

1. Press **ON 2nd QUIT** to view the home screen. Press **CLEAR** to clear the screen.
2. Use the TI-73 to find a number when the percent of it is known. For example, to find 60% of what number is 540, press **5 4 0 ÷ 6 0 % ENTER**. Notice that 540 is 60% of 900.
3. Another way to find a number when a percent of it is known is to convert the percentage to a decimal and then calculate. For example, to find 60% of what number is 540, press **5 4 0 ÷ . 6 ENTER**.



## Practice 14:

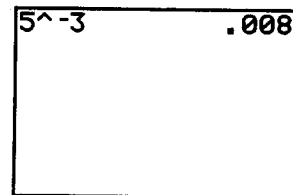
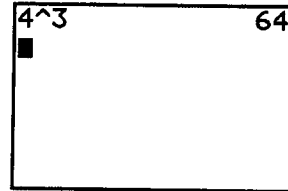
Solve.

- |  |   |
|--|---|
| 1. 45% of what number is 135?<br>_____ | 2. 72 is 6% of what number?<br>_____    |
| 3. 231 is 7% of what number?<br>_____  | 4. 74.8 is 68% of what number?<br>_____ |
| 5. 27% of what number is 108?<br>_____ | 6. 120% of what number is 540?<br>_____ |

# Warm Up 15: Exponents

**Objective:** To calculate an expression with an exponent on the TI-73

1. Press **ON 2nd QUIT** to view the home screen. Press **CLEAR** to clear the screen.
2. Use the TI-73 to calculate an expression with an exponent. For example, to calculate  $4^3$ , press **4 ^ 3 ENTER**.
3. When working with negative exponents you will need to use the **(-)** key to attach the negative sign. You may also need parentheses to insure items are being calculated in the manner you desire. For example, to calculate  $5^{-3}$  you would press **5 ^ (-) 3 ENTER**. But to calculate  $(-5)^3$  you would need to use parentheses.



## Practice 15:

Evaluate.

1.  $2^{-4}$  = \_\_\_\_\_

2.  $6^0$  = \_\_\_\_\_

3.  $(-5)^3$  = \_\_\_\_\_

4.  $3^{-2}$  = \_\_\_\_\_

5.  $3^5$  = \_\_\_\_\_

6.  $(-1.2)^4$  = \_\_\_\_\_

Compare. Use  $>$ ,  $<$  or  $=$ .

7.  $3^3$  \_\_\_\_\_  $5^2$

8.  $10^3$  \_\_\_\_\_  $(-10)^3$

9.  $10^2$  \_\_\_\_\_  $2^{10}$

10.  $3^4$  \_\_\_\_\_  $4^2$

# Warm Up 16: Unit Conversions

**Objective:** To convert units of measurement using the TI-73

1. Press **ON 2nd QUIT** to view the home screen. Press **CLEAR** to clear the screen.
2. Convert from one unit of measurement to another using the TI-73. For example, to convert 45 minutes to hours, press **4 5 2nd CONVERT 4 (Time) 2 (min) 3 (hr) ENTER**. Notice that 45 minutes is equivalent to .75 hours.
3. Another way to convert units is to use multiplication or division. For example, to change 3 days into minutes, multiply the 3 days by 24 hours / day to get the number of hours in 3 days, and then multiply by 60 minutes / hour to get the number of minutes in 3 days. Press **3 × 2 4 × 6 0 ENTER**. Notice there are 4,320 minutes in 3 days.

```
45 min>hr .75
```

```
3*24*60 4320
```

## Practice 16:

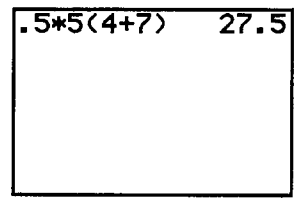
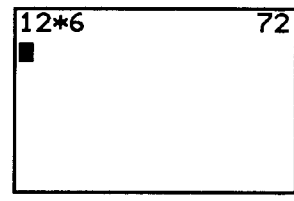
Convert.

1. 253 minutes = \_\_\_\_\_ hours
2. 15,840 feet = \_\_\_\_\_ miles  
(5280 feet / mile)
3. 108,000 seconds = \_\_\_\_\_ days
4. 256 oz = \_\_\_\_\_ lbs  
(16 oz / lb)
5. 14 feet = \_\_\_\_\_ inches
6. 1,500 lbs = \_\_\_\_\_ tons  
(2000 lbs / ton)

# Warm Up 17: Areas

**Objective:** To find areas of parallelograms, triangles, and trapezoids using the TI-73

1. Press **ON 2nd QUIT** to view the home screen. Press **CLEAR** to clear the screen.
2. Calculate the area of an object using the graphing calculator. For example, the formula for the area of a parallelogram is  $A = b \cdot h$ , where  $b$  is the length of the base, and  $h$  is the height of the parallelogram. Find area of the parallelogram with a base of 12 inches and a height of 6 inches by pressing **1 2 × 6 ENTER**. The area of the parallelogram is 72 square inches.
3. The formula for area of a trapezoid is  $A = .5 \cdot h(a + b)$ , where  $h$  is the height of the trapezoid, and  $a$  and  $b$  are the lengths of the parallel sides. Find the area of a trapezoid with a height of 5 inches and the lengths of the parallel sides 4 and 7 inches by pressing **. 5 × 5 ( 4 + 7 ) ENTER**. Notice the calculator accepts the implied multiplication of the parentheses. The area of the trapezoid is 27.5 square inches. *Remember: You can also use the solver feature of the TI-73 as shown in Warm Up 11.*



## Practice 17:

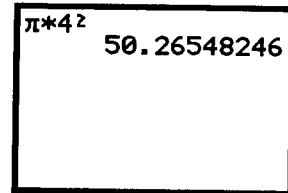
Find the area of the object.

1. Find the area of a trapezoid with a height of 4 inches and the lengths of the parallel sides being 3 and 5 inches.  
Area \_\_\_\_\_
2. Find the area of the parallelogram with a base of 15 inches and a height of 8 inches.  
Area \_\_\_\_\_
3. Find the area of the rectangle with a length of 19 inches and a width of 7 inches.  
Area \_\_\_\_\_
4. Find the area of the triangle with a base of 9 inches and a height of 6 inches.  
Area \_\_\_\_\_

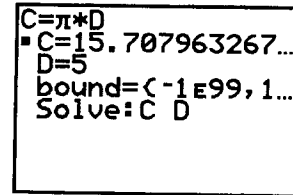
# Warm Up 18: Circles

**Objective:** To calculate areas and circumferences of circles using the TI-73

1. Press **ON 2nd QUIT** to view the home screen. Press **CLEAR** to clear the screen.
2. Calculate the area of a circle on the graphing calculator. The formula is  $A = \pi r^2$ , where  $r$  is the radius of the circle. Find the area of a circle with a radius of 4 feet by pressing **2nd  $\pi$   $\times$  4  $x^2$  ENTER**. The area of the circle is approximately 50 square feet.



3. The formula for the circumference of a circle is  $C = \pi d$ , where  $d$  is the diameter of the circle. Find the circumference of a circle with a diameter of 5 feet by pressing **MATH 6 (Solver)  $\blacktriangle$  CLEAR 2nd TEXT  $\blacktriangleright$   $\blacktriangleright$  (C) ENTER  $\blacktriangledown$   $\blacktriangledown$   $\blacktriangledown$   $\blacktriangleleft$   $\blacktriangleleft$  ENTER  $\blacktriangledown$  ENTER 2nd  $\pi$   $\times$  2nd TEXT  $\blacktriangleright$   $\blacktriangleright$   $\blacktriangleright$  (D) ENTER  $\blacktriangledown$   $\blacktriangledown$   $\blacktriangledown$  ENTER. Then, press **ENTER  $\blacktriangledown$  5 ENTER  $\blacktriangledown$  ENTER**. The circumference is approximately 16 feet.**



## Practice 18:

Calculate the area and circumference of the following circles. Round your answer to the nearest whole number.

- |  |   |
|--|---|
| <ol style="list-style-type: none"> <li>1. The circle with radius of 56 feet.<br/>Area _____<br/>Circumference _____</li> <li>3. The circle with diameter of 3.2 meters.<br/>Area _____<br/>Circumference _____</li> <li>5. The circle with radius of 6.7 inches.<br/>Area _____<br/>Circumference _____</li> </ol> | <ol style="list-style-type: none"> <li>2. The circle with diameter of 62 cm.<br/>Area _____<br/>Circumference _____</li> <li>4. The circle with radius of 23 km.<br/>Area _____<br/>Circumference _____</li> <li>6. The circle with diameter of 40 yds.<br/>Area _____<br/>Circumference _____</li> </ol> |
|--|---|

# Warm Up 19: Surface Areas

**Objective:** To find the surface area of an object using the TI-73

1. Press **ON 2nd QUIT** to view the home screen. Press **CLEAR** to clear the screen.
2. You can easily calculate the surface area of a rectangular box on the graphing calculator. The formula for the surface area of a rectangular box is  $SA = 2 \cdot l \cdot w + 2 \cdot w \cdot h + 2 \cdot l \cdot h$ , where  $l$  is the length,  $w$  is the width, and  $h$  is the height. Find the surface area of a rectangular box with a length of 6 feet, a width of 3 feet, and height of 2 feet by pressing  $2 \times 6 \times 3 + 2 \times 3 \times 2 + 2 \times 6 \times 2$  **ENTER**. The surface area of the rectangular box is 72 square feet.
3. The formula for the surface area of a cylinder is  $SA = 2 \cdot \pi \cdot r \cdot l + 2 \cdot \pi \cdot r^2$ , where  $r$  is the radius and  $l$  is the length of the cylinder. Find the surface area of a cylinder with a radius of 3 feet and a length of 8 feet by pressing  $2 \times 2nd \pi \times 3 \times 8 + 2 \times 2nd \pi \times 3 \times 3^2$  **ENTER**. The surface area of the cylinder is approximately 207 square feet. *Remember: You can also use your solver feature of the TI-73.*

2\*6\*3+2\*3\*2+2\*6\*2  
72

2\*pi\*3\*8+2\*pi\*3^2  
207.3451151

## Practice 19:

Find the surface area of the following shapes. Round the answer to the nearest whole number.

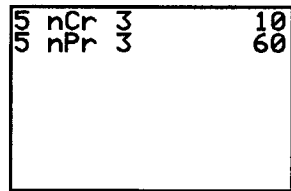
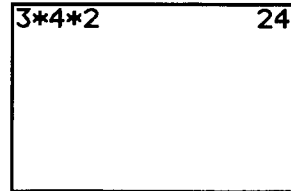
- |  |  |
|--|--|
| <ol style="list-style-type: none"> <li>1. A rectangular box with a length of 5 feet, a width of 4 feet, and height of 3 feet.<br/>SA = _____</li> <li>3. A cylinder with a radius of 4 feet and a length of 7 feet.<br/>SA = _____</li> <li>5. A rectangular box with a length of 8 feet, a width of 5 feet, and height of 2 feet.<br/>SA = _____</li> </ol> | <ol style="list-style-type: none"> <li>2. A cone with radius (<math>r</math>) of 3 ft and slant height (<math>s</math>) of 8 ft. (<math>SA = \pi \cdot r^2 + \pi \cdot r \cdot s</math>)<br/>SA = _____</li> <li>4. A cylinder with a radius of 2 feet and a length of 9 feet.<br/>SA = _____</li> <li>6. A cone with radius of 4 feet and slant height of 6 feet.<br/>SA = _____</li> </ol> |
|--|--|



# Warm Up 21: Counting, Permutations, and Combinations

**Objective:** To count the number of possibilities and to find permutations and combinations using the TI-73

1. Press **ON 2nd QUIT** to view the home screen. Press **CLEAR** to clear the screen.
2. You can easily calculate the number of possibilities on the graphing calculator. The fundamental theorem of counting says that we can multiply the number of choices at each step to find the total number of possibilities. Find the number of outfits that can be formed from 3 shirts, 4 pants, and 2 hats by pressing **3 × 4 × 2 ENTER**. The number of possible outfits is 24.
3. Counting also involves permutations and combinations. For example, combinations are the number of possible sets of 3 we might get from a set of 5, where order does not matter (Committee of three). Permutations are the number of possible sets of 3 we might get from a set of 5, where order matters (President, Vice-President, Secretary). Find the number of combinations of 3 from a set of 5 by pressing **5 MATH ►► 4 (nCr) 3 ENTER**. Find the number of permutations of 3 from a set of 5 by pressing **5 MATH ►► 3 (nPr) 3 ENTER**. The number of combinations is 10 and the number of permutations is 60.



## Practice 21:

Calculate the following number of possibilities.

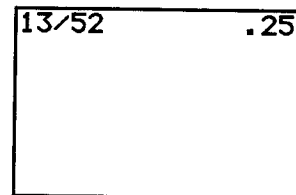
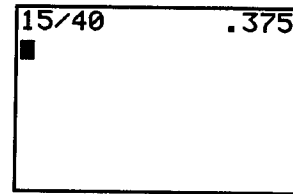
1. The number of outfits that can be formed from 5 shirts, 4 pants, and 3 hats.  
\_\_\_\_\_
2. The number of combinations of 5 from a set of 8.  
\_\_\_\_\_
3. The number of possibilities when three dice are rolled.  
\_\_\_\_\_
4. The number of permutations of 4 from a set of 7.  
\_\_\_\_\_
5. The number of possibilities when three coins are tossed.  
\_\_\_\_\_
6. The number of combinations of 2 from a set of 6.  
\_\_\_\_\_



# Warm Up 22: Probability

**Objective:** To calculate probability using the TI-73

1. Press **ON 2nd QUIT** to view the home screen. Press **CLEAR** to clear the screen.
2. Calculate the probability of an event on the graphing calculator. The method for finding the probability of an event is to divide the number of possibilities in the event by the total number of possibilities. For example, 15 girls are in a class of 40 students, find the probability of a girl answering a question by pressing **1 5 ÷ 4 0 ENTER**. The probability of a girl answering a question is .375.
3. Find the probability of drawing a heart from a standard set of shuffled cards. There are 13 heart cards in a standard set of cards. Also, there are 52 cards in the whole deck. Find the probability of drawing a heart by pressing **1 3 ÷ 5 2 ENTER**. The probability of drawing a heart from a standard set of shuffled cards is .25.



## Practice 22:

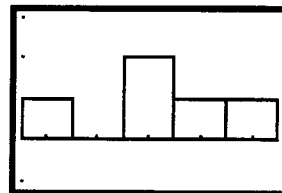
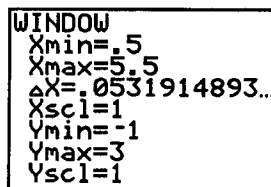
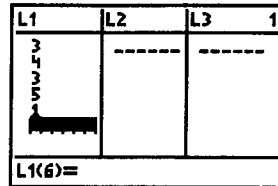
Calculate the probabilities.

- |  |  |
|--|--|
| <ol style="list-style-type: none"> <li>1. Drawing a Jack of Clubs from a deck of shuffled cards.<br/>_____</li> <li>3. Drawing a number less than 5 from a deck of shuffled cards with no Aces.<br/>_____</li> <li>5. Picking a multiple of 7 from the integers 1 through 30.<br/>_____</li> </ol> | <ol style="list-style-type: none"> <li>2. Picking a perfect square from the integers 1 through 30.<br/>_____</li> <li>4. Getting 8 when rolling a single die.<br/>_____</li> <li>6. Getting a 5 or 2 when rolling a single die.<br/>_____</li> </ol> |
|--|--|

# Warm Up 23: Histograms

**Objective:** To draw histograms using the TI-73

1. Press **Y=** and **CLEAR** to clear the  $Y_1$  prompt. Press **▼** and **CLEAR** to clear additional prompts.
2. Enter the data set into the calculator by first pressing **LIST** and pressing **DEL** repeatedly to delete data from the first list ( $L_1$ ). If necessary, press **▶** to move to the second list. Enter the data set {3, 4, 3, 5, 1} into  $L_1$  by pressing **3 ENTER 4 ENTER 3 ENTER 5 ENTER 1 ENTER**.
3. Set the viewing window by pressing **WINDOW** . **5 ENTER 5 . 5 ENTER ▼ 1 ENTER (-) 1 ENTER 3 ENTER 1 ENTER**. The Xmin, Xmax and Xscl were set to create a bars of length over each of the numbers 1 through 5. The Ymin, Ymax and Yscl were set to see the entire histogram.
4. Set up the histogram by pressing **2nd PLOT 1 ENTER ▼ ▶ ▶ ▶ ▶ ▶ ENTER ▼ 2nd STAT 1 ( $L_1$ ) ENTER ▶ 1 ENTER**. View the histogram by pressing **GRAPH**. Remember to turn off the statistics plot by pressing **2nd PLOT 1 ▶ ENTER CLEAR**.



## Practice 23:

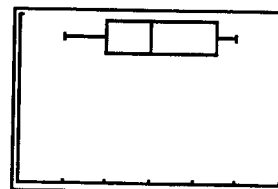
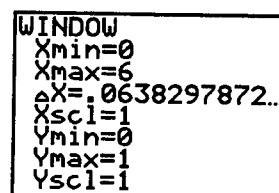
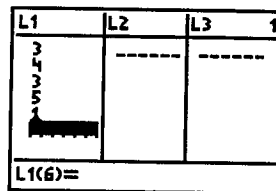
Use your graphing calculator to draw histograms. Sketch your results in the space below each set.

1. {1, 3, 1, 2, 4, 2, 1, 4}
2. {2, 3, 3, 4, 4, 5, 4, 3, 2, 1}
3. {1, 2, 3, 4, 4, 3, 3, 2}
4. {5, 4, 3, 1, 4, 5, 5}

# Warm Up 24: Box-and-Whisker Charts

**Objective:** To draw box-and-whisker charts using the TI-73

1. Press **Y=** and **CLEAR** to clear the  $Y_1$  prompt. Press **▼** and **CLEAR** to clear additional prompts.
2. Enter the data set into the calculator by first pressing **LIST** and pressing **DEL** repeatedly to delete data from the first list ( $L_1$ ). If necessary, press **▶** to move to the second list. Enter the data set {3, 4, 3, 5, 1} into  $L_1$  by pressing **3 ENTER 4 ENTER 3 ENTER 5 ENTER 1 ENTER**.
3. Set the viewing window by pressing **WINDOW 0 ENTER 6 ENTER ▼ 1 ENTER 0 ENTER 1 ENTER 1 ENTER**. The Xmin, Xmax and Xscl were set to see all of the box-and-whisker chart. The Ymin, Ymax and Ymin will not change.
4. Set up the box-and-whisker chart by pressing **2nd PLOT 1 ENTER ▼ ▶ ▶ ▶ ▶ ▶ ▶ ▶ ENTER ▼ 2nd STAT 1 ( $L_1$ ) ENTER ▼ 1 ENTER**. View the box-and-whisker chart by pressing **GRAPH**. Remember to turn off the statistics plot by pressing **2nd PLOT 1 ▶ ENTER CLEAR**.



## Practice 24:

Use your graphing calculator to draw box-and-whisker charts for the following data. Sketch what you see in the space below each set.

1. {1, 3, 1, 2, 4, 2, 1, 4}
2. {2, 3, 3, 4, 4, 5, 4, 3, 2, 1}
3. {1, 2, 3, 4, 4, 3, 3, 2}
4. {5, 4, 3, 1, 4, 5, 5}

# Warm Up 25: Mean and Standard Deviation

**Objective:** To calculate the mean and standard deviation of a data set using the TI-73

1. Enter the data set into the calculator by first pressing **LIST** and pressing **DEL** repeatedly to delete data from the first list ( $L_1$ ). If necessary, press **▶** to move to the second list. Enter the data set {3, 4, 3, 5, 1} into  $L_1$  by pressing **3 ENTER 4 ENTER 3 ENTER 5 ENTER 1 ENTER**.

L1	L2	L3	1
3 4 3 5 1	-----	-----	
L1(6)=			

2. Calculate the mean and standard deviation of the data set by pressing **2nd STAT ▶ ▶ ▶ 1** (1-Var Stats) **ENTER**. Notice the mean ( $\bar{x}$ ) is 3.2 and the standard deviation ( $s$ ) is approximately 1.48.

1-Var Stats
$\bar{x}=3.2$
$\Sigma x=16$
$\Sigma x^2=60$
$Sx=1.483239697$
$\downarrow \sigma x=1.326649916$
$n=5$

## Practice 25:

Use your graphing calculator to find the mean and standard deviation for each set.

1. {1, 3, 1, 2, 4, 2, 1, 4}
 

Mean \_\_\_\_\_

Standard deviation \_\_\_\_\_
2. {8, 5, 8, 4, 9, 5, 3, 4, 3, 3, 2}
 

Mean \_\_\_\_\_

Standard deviation \_\_\_\_\_
3. {12, 3, 3, 14, 4, 5, 4, 13, 2, 11}
 

Mean = \_\_\_\_\_

Standard deviation \_\_\_\_\_
4. {15, 14, 13, 11, 14, 15, 15}
 

Mean \_\_\_\_\_

Standard deviation \_\_\_\_\_

# Warm Up 26: Minimum, Median, Maximum, and Range

**Objective:** To calculate the minimum, median, maximum, and range using the TI-73

1. Enter the data set into the calculator by first pressing **LIST** and pressing **DEL** repeatedly to delete data from the first list ( $L_1$ ). If necessary, press **▶** to move to the second list. Enter the data set {3, 4, 3, 5, 1} into  $L_1$  by pressing **3 ENTER 4 ENTER 3 ENTER 5 ENTER 1 ENTER**.

L1	L2	L3	1
3 4 3 5 1	-----	-----	
L1(6)=			

2. Calculate the minimum, median and maximum the data set by pressing **2nd STAT ▶ ▶ ▶ 1** (1-Var Stats) **ENTER** and repeatedly pressing **▼** until the statistics are displayed. Notice the minimum (minX) is 1, the median (Med) is 3, and the maximum (maxX) is 5. You can calculate the range by subtracting the minimum from the maximum. The range for this data set is  $5 - 1 = 4$ .

1-Var Stats
n=5
minX=1
Q1=2
Med=3
Q3=4.5
maxX=5

## Practice 26:

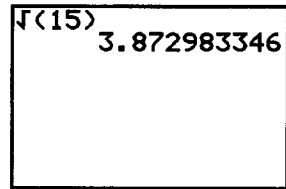
Use your graphing calculator to find the minimum, median, maximum and range for each set.

- |   |  |
|---|--|
| <ol style="list-style-type: none"> <li>1. {1, 3, 1, 2, 4, 2, 1, 4}<br/>Minimum _____<br/>Median _____<br/>Maximum _____<br/>Range _____</li> </ol>          | <ol style="list-style-type: none"> <li>2. {12, 3, 3, 14, 4, 5, 4, 13, 2, 11}<br/>Minimum _____<br/>Median _____<br/>Maximum _____<br/>Range _____</li> </ol> |
| <ol style="list-style-type: none"> <li>3. {8, 5, 8, 4, 9, 5, 3, 4, 3, 3, 2}<br/>Minimum _____<br/>Median _____<br/>Maximum _____<br/>Range _____</li> </ol> | <ol style="list-style-type: none"> <li>4. {15, 14, 13, 11, 14, 15, 15}<br/>Minimum _____<br/>Median _____<br/>Maximum _____<br/>Range _____</li> </ol>       |

# Warm Up 27: Square Roots

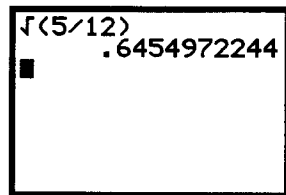
**Objective:** To calculate square roots using the TI-73

1. Press **ON 2nd QUIT** to view the home screen. Press **CLEAR** to clear the screen.



2. Calculate the square root of a number on the graphing calculator. For example, to find the  $\sqrt{15}$  simply press **2nd √ 1 5 ) ENTER**. Notice the square root of 15 is approximately 3.87.

3. Find the square root of a fraction. For example, to find the square root of  $5/12$ , press **2nd √ 5 ÷ 1 2 ) ENTER**. Notice the  $5/12$  is in parentheses. This forces the calculator to take the square root of the whole fraction and not just the numerator. The square root of  $5/12$  is approximately .65.



## Practice 27:

Find each square root.

1.  $\sqrt{7}$  = \_\_\_\_\_

2.  $\sqrt{15} + \sqrt{6}$  = \_\_\_\_\_

3.  $-\sqrt{18}$  = \_\_\_\_\_

4.  $\sqrt{5} \times \sqrt{11}$  = \_\_\_\_\_

5.  $\sqrt{26} - \sqrt{17}$  = \_\_\_\_\_

6.  $\sqrt{(6/13)}$  = \_\_\_\_\_

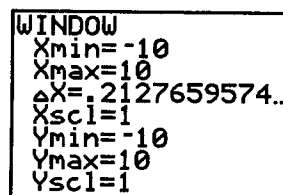
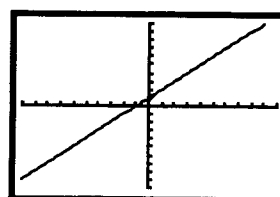
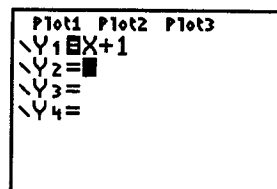
7.  $-\sqrt{14} + \sqrt{8}$  = \_\_\_\_\_

8.  $\sqrt{(14/15)}$  = \_\_\_\_\_

# Warm Up 28: Graphing Equations

**Objective:** To graph equations using the TI-73

1. Press **Y=** and **CLEAR** to clear the  $Y_1$  prompt. Press **▼** and **CLEAR** to clear additional prompts.
2. To graphing equations, for example, the equation  $y = x + 1$ , enter the equation  $y = x + 1$  for  $Y_1$  by moving the blinking cursor to the  $Y_1$  prompt and pressing **X + 1 ENTER**.
3. Set the viewing window to a standard viewing window and view the graph of the equation by pressing **ZOOM 6** (Zstandard). This graph is made up of many points. Press **TRACE** to place a tracer on the graph. Move the tracer by pressing the left or right arrow keys. You will see the ordered pair at the bottom of the screen for the point at which the tracer is located.
4. Press **WINDOW** to view the  $X_{min}$ ,  $X_{max}$ ,  $X_{scl}$ ,  $Y_{min}$ ,  $Y_{max}$  and  $Y_{scl}$  for a standard viewing window. Notice the standard viewing window runs from -10 to 10 along each coordinate axis with "tick marks" one unit apart.



## Practice 28:

Graph each equation in the standard viewing window. Sketch what you see in the space below each set.

1.  $y = -x + 2$

2.  $y = \sqrt{x + 1}$

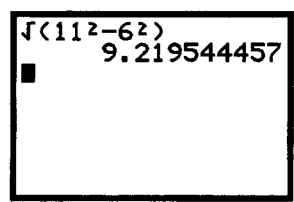
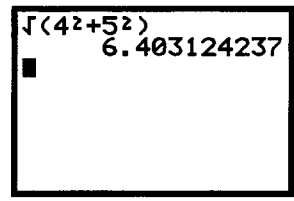
3.  $y = x^3$

4.  $y = -x^2 - x + 3$

# Warm Up 29: Pythagorean Theorem

**Objective:** To find unknown lengths of triangles with the Pythagorean Theorem using the TI-73

1. Press **ON 2nd QUIT** to view the home screen. Press **CLEAR** to clear the screen.
2. In any right triangle, the sum of the squares of the lengths of the sides is equal to the square of the length of the hypotenuse. The length of the hypotenuse is the square root of the sum of the squared sides. For example, to find the length of the hypotenuse for a right triangle with sides of length 4 and 5 inches, simply press **2nd √ 4 x<sup>2</sup> + 5 x<sup>2</sup> ) ENTER**. The hypotenuse is approximately 6.4 inches long.
3. To find the length of one of the sides, take the square root of the difference between the squared hypotenuse and the square of the known side. For example, to find the length of the side of a right triangle with a side 6 feet and a hypotenuse 11 feet, press **2nd √ 11 x<sup>2</sup> - 6 x<sup>2</sup> ) ENTER**. The unknown side is approximately 9.2 feet long.



## Practice 29:

Use your graphing calculator and the Pythagorean Theorem to find the missing piece of the right triangle.

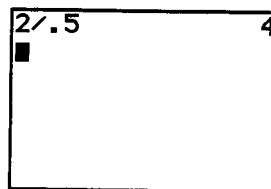
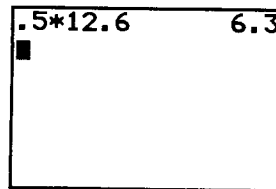
- |  |  |
|--|--|
| <p>1. Hypotenuse = 12<br/>Side = 8<br/>Side = _____</p>  | <p>2. Side = 20<br/>Side = 16<br/>Hypotenuse = _____</p> |
| <p>3. Side = 13<br/>Side = 12<br/>Hypotenuse = _____</p> | <p>4. Side = 11<br/>Side = 7<br/>Hypotenuse = _____</p>  |
| <p>5. Hypotenuse = 14<br/>Side = 9<br/>Side = _____</p>  | <p>6. Hypotenuse = 15<br/>Side = 6<br/>Side = _____</p>  |



# Warm Up 30: Right Triangles

**Objective:** To make calculations with a 30°-60° right triangle using the TI-73

1. Press **ON 2nd QUIT** to view the home screen. Press **CLEAR** to clear the screen.
2. Make calculations for a 30°-60° right triangle on the graphing calculator. *Remember: The length of the side opposite the 30° angle is one-half the length of the hypotenuse.* To find the length of the side opposite the 30° angle, given the hypotenuse is 12.6 cm, press **. 5 × 1 2 . 6 ENTER**. The side is 6.3 cm long.
3. To find the length of hypotenuse, given the side opposite the 30° angle is 2 inches long, press **2 ÷ . 5 ENTER**. Notice the hypotenuse is 4 inches long.



## Practice 30:

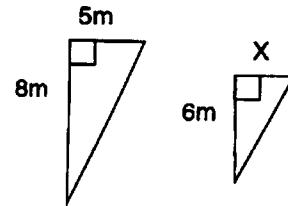
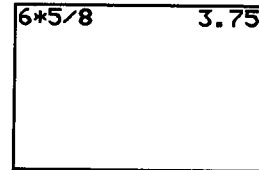
Use your graphing calculator to find the missing piece of the 30°-60° right triangle.

- |  |  |
|--|--|
| <p>1. Hypotenuse = 12 mm<br/>Side opposite 30° = _____</p> | <p>2. Hypotenuse = 17 mm<br/>Side opposite 30° = _____</p> |
| <p>3. Hypotenuse = _____<br/>Side opposite 30° = 8 ft</p>  | <p>4. Hypotenuse = 23 cm<br/>Side opposite 30° = _____</p> |
| <p>5. Hypotenuse = _____<br/>Side opposite 30° = 13 m</p>  | <p>6. Hypotenuse = _____<br/>Side opposite 30° = 7 yd</p>  |

# Warm Up 31: Proportions

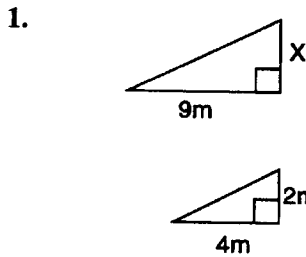
**Objective:** To find the length of side of similar triangles using proportions on the TI-73.

1. Press **ON 2nd QUIT** to view the home screen. Press **CLEAR** to clear the screen.
2. If two triangles are similar, the measures of their corresponding sides are proportional. To find the length of side  $x$  in the triangles shown below, set up the proportion and solve for  $x$ . Then use the graphing calculator to find  $x$ . The proportion is  $8/6 = 5/x$ . This can be rewritten as  $8 \cdot x = 6 \cdot 5$  and then as  $x = 6 \cdot 5/8$ . Find  $x$  by pressing  $6 \times 5 \div 8$  **ENTER**. The side  $x$  is 3.75 m long.

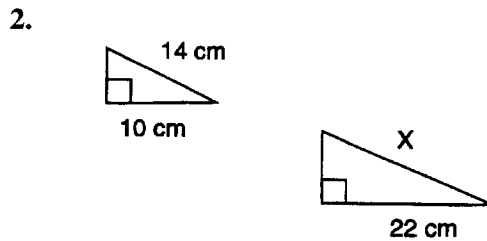


## Practice 31:

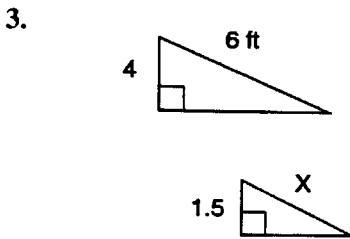
Use a proportion and your graphing calculator to find the missing side  $x$  of the triangle.



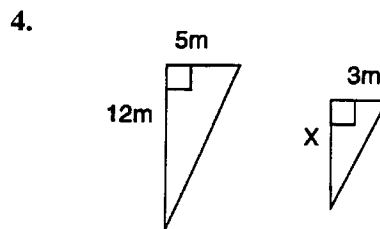
$x =$  \_\_\_\_\_



$x =$  \_\_\_\_\_



$x =$  \_\_\_\_\_

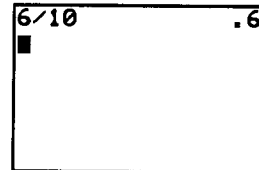


$x =$  \_\_\_\_\_

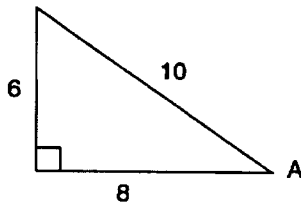
# Warm Up 32: Trigonometric Ratios

**Objective:** To find the trigonometric ratios using the TI-73

1. Press **ON 2nd QUIT** to view the home screen. Press **CLEAR** to clear the screen.

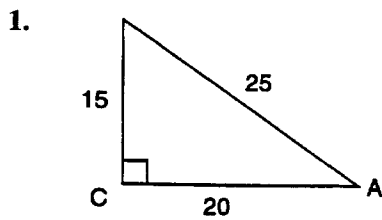


2. The sine of angle A is the measure of the side opposite angle A divided by the measure of the hypotenuse. The cosine of angle A is the measure of the side adjacent angle A divided by the measure of the hypotenuse. The tangent of angle A is the measure of the side opposite angle A divided by the measure of the side adjacent angle A. You can easily find a trigonometric ratio on the graphing calculator. To find the sine ratio for angle A in the triangle shown below, press **6 ÷ 1 0 ENTER**. The sin A is .6.

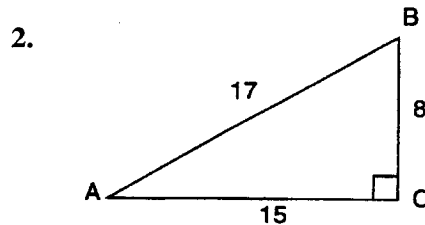


## Practice 32:

Use your graphing calculator to find the trigonometric ratios of the triangle.



sin A = \_\_\_\_\_  
 cos A = \_\_\_\_\_  
 tan A = \_\_\_\_\_  
 sin B = \_\_\_\_\_  
 cos B = \_\_\_\_\_  
 tan B = \_\_\_\_\_



sin A = \_\_\_\_\_  
 cos A = \_\_\_\_\_  
 tan A = \_\_\_\_\_  
 sin B = \_\_\_\_\_  
 cos B = \_\_\_\_\_  
 tan B = \_\_\_\_\_

# Answer Key

## Practice 1:

- |             |           |                       |                |             |
|-------------|-----------|-----------------------|----------------|-------------|
| 1. 3,148    | 2. 730.67 | 3. 2,218              | 4. 189,952,152 | 5. 1,145.64 |
| 6. -114,891 | 7. 16     | 8. Answers will vary. |                |             |

## Practice 2:

- |            |           |                       |            |          |
|------------|-----------|-----------------------|------------|----------|
| 1. 34.66   | 2. .1.267 | 3. .676               | 4. 32.0049 | 5. 1.087 |
| 6. 159.133 | 7. 32.623 | 8. Answers will vary. |            |          |

## Practice 3:

- |            |           |            |            |        |
|------------|-----------|------------|------------|--------|
| 1. 21.1216 | 2. 2.9829 | 3. 13.0115 | 4. 22.2893 | 5. 3.5 |
| 6. 1.7739  |           |            |            |        |

## Practice 4:

- |              |             |             |         |              |
|--------------|-------------|-------------|---------|--------------|
| 1. 30,700    | 2. 35       | 3. .0055    | 4. 2400 | 5. 2.9837E-2 |
| 6. 2.3532E-2 | 7. 4.1076E4 | 8. 1.288E-2 |         |              |

## Practice 5:

- |               |              |               |               |                |
|---------------|--------------|---------------|---------------|----------------|
| 1. 7 and 168  | 2. 9 and 360 | 3. 18 and 108 | 4. 12 and 864 | 5. 3 and 2,139 |
| 6. 12 and 840 |              |               |               |                |

## Practice 6:

- |        |            |           |             |          |
|--------|------------|-----------|-------------|----------|
| 1. .6  | 2. .166... | 3. .77... | 4. .5454... | 5. 17/20 |
| 6. 7/8 | 7. 11/20   | 8. 22/25  |             |          |

## Practice 7:

- |                          |                         |
|--------------------------|-------------------------|
| 1. 3/10, 1/3, 2/5, 1/2   | 2. 1/4, 3/8, 5/12, 3/5  |
| 3. 19/8, 12/5, 8/3, 11/4 | 4. 4/9, 9/20, 7/15, 6/7 |
| 5. 3/8, 2/3, 7/10, 3/4   | 6. 7/5, 7/3, 5/2, 21/8  |

## Practice 8:

- |          |        |           |        |        |
|----------|--------|-----------|--------|--------|
| 1. 8/9   | 2. 1/3 | 3. 25 2/5 | 4. 4/5 | 5. 1/6 |
| 6. 6 1/9 |        |           |        |        |

## Practice 9:

- |           |         |          |          |           |
|-----------|---------|----------|----------|-----------|
| 1. 4/27   | 2. 3/20 | 3. 1 2/3 | 4. 1 1/2 | 5. 6 2/25 |
| 6. 4 4/11 |         |          |          |           |

## Practice 10:

- |                    |                        |                 |                    |
|--------------------|------------------------|-----------------|--------------------|
| 1. 44, 38, 32, ... | 2. 117, 107, 97, ...   | 3. 9, 3, 1, ... | 4. 25, 31, 37, ... |
| 5. 4, 40, 400, ... | 6. 135, 405, 1215, ... |                 |                    |

## Practice 11:

- |          |       |           |       |
|----------|-------|-----------|-------|
| 1. 3.464 | 2. 30 | 3. 26.667 | 4. 28 |
|----------|-------|-----------|-------|

Practice 12:

- |       |      |       |      |       |
|-------|------|-------|------|-------|
| 1. 20 | 2. 9 | 3. 72 | 4. 2 | 5. 20 |
| 6. 36 |      |       |      |       |

Practice 13:

- |          |        |        |         |          |
|----------|--------|--------|---------|----------|
| 1. 50%   | 2. 28% | 3. 80% | 4. 160% | 5. 16.7% |
| 6. 6.25% |        |        |         |          |

Practice 14:

- |        |          |          |        |        |
|--------|----------|----------|--------|--------|
| 1. 300 | 2. 1,200 | 3. 3,300 | 4. 110 | 5. 400 |
| 6. 450 |          |          |        |        |

Practice 15:

- |           |      |         |          |        |
|-----------|------|---------|----------|--------|
| 1. .0625  | 2. 1 | 3. -125 | 4. .1111 | 5. 243 |
| 6. 2.0736 | 7. > | 8. =    | 9. <     | 10. >  |

Practice 16:

- |         |      |         |       |        |
|---------|------|---------|-------|--------|
| 1. 4.22 | 2. 3 | 3. 1.25 | 4. 16 | 5. 168 |
| 6. .75  |      |         |       |        |

Practice 17:

- |       |        |        |       |  |
|-------|--------|--------|-------|--|
| 1. 16 | 2. 120 | 3. 133 | 4. 27 |  |
|-------|--------|--------|-------|--|

Practice 18:

- |              |              |          |              |            |
|--------------|--------------|----------|--------------|------------|
| 1. 9852, 352 | 2. 3019, 195 | 3. 8, 10 | 4. 1662, 145 | 5. 141, 42 |
| 6. 1257, 126 |              |          |              |            |

Practice 19:

- |        |        |        |        |        |
|--------|--------|--------|--------|--------|
| 1. 94  | 2. 104 | 3. 276 | 4. 138 | 5. 132 |
| 6. 126 |        |        |        |        |

Practice 20:

- |       |       |        |        |       |
|-------|-------|--------|--------|-------|
| 1. 60 | 2. 75 | 3. 352 | 4. 113 | 5. 80 |
| 6. 40 |       |        |        |       |

Practice 21:

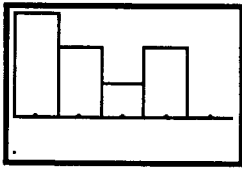
- |       |       |        |        |      |
|-------|-------|--------|--------|------|
| 1. 60 | 2. 56 | 3. 216 | 4. 840 | 5. 8 |
| 6. 15 |       |        |        |      |

Practice 22:

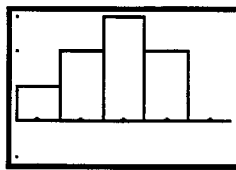
- |         |         |         |      |         |
|---------|---------|---------|------|---------|
| 1. .25  | 2. .161 | 3. .385 | 4. 0 | 5. .097 |
| 6. .333 |         |         |      |         |

**Practice 23:**

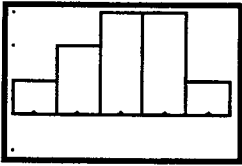
1.



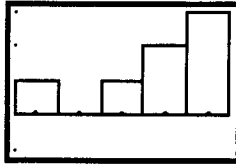
2.



3.

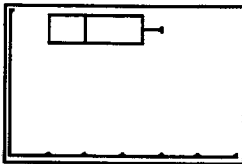


4.

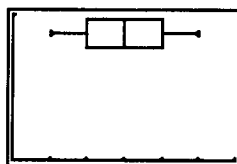


**Practice 24:**

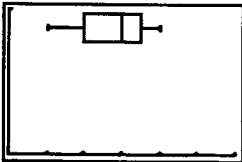
1.



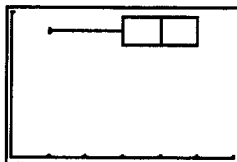
2.



3.



4.



**Practice 25:**

1. 2.25, 1.28

2. 4.91, 2.39

3. 7.1, 4.77

4. 13.86, 1.46

**Practice 26:**

1. 1, 2, 4, 3

2. 2, 4.5, 14, 12

3. 2, 4, 9, 7

4. 11, 14, 15, 4

**Practice 27:**

1. 2.65

2. 1.58

3. -4.24

4. 7.42

5. .9759

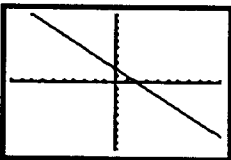
6. .6794

7. -.9132

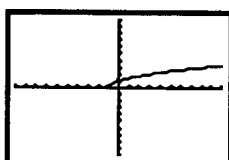
8. .9661

**Practice 28:**

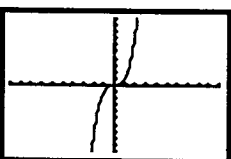
1.



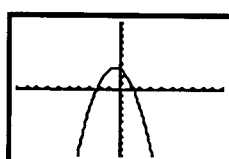
2.



3.



4.



**Practice 29:**

1. 8.9                      2. 25.6                      3. 17.7                      4. 13                      5. 10.7  
6. 13.7

**Practice 30:**

1. 6                      2. 8.5                      3. 16                      4. 11.5                      5. 26  
6. 14

**Practice 31:**

1. 4.5                      2. 30.8                      3. 2.25                      4. 7.2

**Practice 32:**

1. .6, .8, .75, .8, .6, 1.33                      2. .4706, .8824, .5333, .8824, .4706, 1.875