

## WARM UP with a calculator

1) In the Senate election for student body president, Frank won 58% of the votes. If Edna received 436 votes, how many votes were cast in total?

$$0.42 \cdot X = 436$$

$$X = 1038$$

2) A survey of 225 senior citizens found that 19% had not planned correctly for their retirement. Find the margin of error. Then use the margin of error to find the an interval that is likely to contain the true population proportion.

$$\pm \frac{1}{\sqrt{225}} \quad 7\% \quad 12\% - 26\%$$

3) If you travel at a constant rate of 65 miles/hr, what is your rate in feet/sec?

$$\frac{65 \text{ m}}{1 \text{ hr}} \cdot \frac{5280 \text{ ft}}{1 \text{ m}} \cdot \frac{1 \text{ hr}}{3600 \text{ sec}} = 48.15 \text{ ft/sec}$$

4) Find SD, mean, median, and mode. 55, 38, 60, 40, 39, 47, 56, 53, 48, 40

$$\begin{aligned} \text{Mean} &= 47.6 & \text{mode} &= 40 \\ \text{SD} &= 47.6 & \text{med} &= 47.5 \end{aligned}$$

## Homework Questions!

Use dimensional analysis to solve the following problems. Show all steps needed to convert from starting units to ending units. Round all answers to two decimals. Use any of the following relationships if needed:

1 mile = 1.6 km	1 m = 3.28 ft	16 oz = 1 lb
1 mile = 5280 ft	1 oz = 28.35 g	1 hr = 60 min
1 yd = 0.91 m	1 kg = 2.2 lbs	\$1 = 0.66 £

- Falcons can dive at speeds of up to 318 feet per second. Convert this speed to miles per hour.
- A cyclist travels 56 miles in 4 hours. What is the cyclist's speed in feet per minute?
- Traveling at 65 miles/hour, how many feet can you travel in 22 minutes?
- Sally Leadfoot was pulled over on her way from Denver to Boulder by an officer claiming she was speeding. The speed limit is 65 miles/hour and Sally had traveled 97 km in 102 minutes. How fast was Sally's average speed? Does she deserve a speeding ticket?
- Bailey found some lace at a price of 4.0 £ per meter in Ireland that she liked but was afraid she was paying too much for it. The same lace in the U.S. would sell for \$5.99 per yard. Was she paying too much for it?
- After a nice meal, perhaps you'd finish it off with a pound (1.00 lb) cake for dessert. What would the name of this cake be in grams?
- In the Tour de France, cyclists ride 3653.6 km in 20 days. What is their rate in miles per hour?
- A domestic pig can travel up to 15 miles per hour. What is this rate in feet per minute?
- It's estimated that Bill Gates makes a staggering \$45 billion per year. How much does he make per second?
- Dame Maggie wanted to purchase a new carpet for her house in England. A 6 ft  $\times$  9 ft Bokhara rug would cost \$1,600. How much would this carpet cost in pounds per square meter?

$$\begin{array}{c|c|c|c}
 \$1600 & \text{£} & & \\
 \hline
 54 \text{ ft}^2 & \$1 & (3.28)^2 \text{ ft}^2 & \text{£} \\
 & & (1)^2 \text{ m}^2 & \text{m}^2
 \end{array}$$

The table shows the relationship between the field goals attempted and points scored by one basketball player over a 6-game period.

x	Field goals attempted (b)	8	6	10	9	7	10
y	Points scored (p)	12	9	14	14	11	15

1) Find the linear regression equation using your calculator.

$$y = 1.35x + 1.25$$

2) Using your equation to

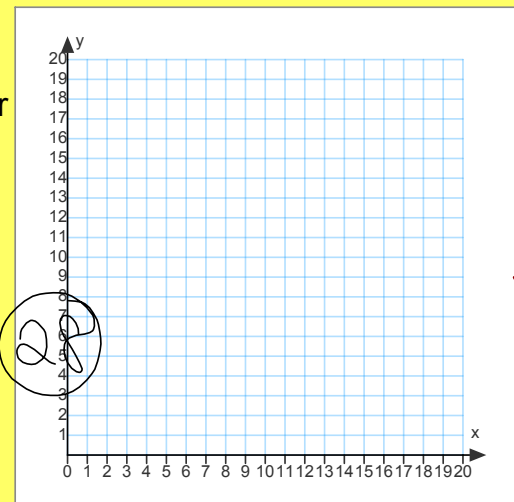
predict the points scored if 20 field goals

are attempted.  $y = 1.35(20) + 1.25$

3) How many field goals were attempted if he scored 10 points.

$$10 = 1.35x + 1.25$$

$$8.75 = 1.35x$$



$x = 6$  or  $7$  attempts

1. Get out your calculators and workbooks. Turn to pg 10.
2. Activate the r/r squared setting
3. How do we enter data into the calculator??
4. To run a linear regression: STAT → CALC → Lin Reg

3) In BMX dirt-bike racing, jumping high or “getting air” depends on many factors: the rider’s skill, the angle of the jump, and the weight of the bike. Here are data about the maximum height for various bike weights.

Weight (pounds)	Height (inches)
19	10.35
19.5	10.3
20	10.25
20.5	10.2
21	10.1
22	9.85
22.5	9.8
23	9.79
23.5	9.7
24	9.6

a) Write the equation of the line of best fit using the linear regression feature on your calculator. \_\_\_\_\_

b) What does the slope mean in the context of this data?

\_\_\_\_\_

c) Is there a positive, negative, or no relationship between bike weight and jump height? Explain your answer.

\_\_\_\_\_

d) Use your line of best fit to predict the maximum height for a bike that weighs 21.5 pounds if all other factors are held constant.

\_\_\_\_\_

Complete Problem 4 when done.

1. You will be put into groups of 4.
2. You will have one table and two sets of categories to investigate
3. Input the data into your calculator and look at the scatter plot.  
Is there a strong, ok, or weak correlation?
4. Find the linear regression and  $r/r$  squared value.
5. Each group is going to share their results.
  - ~ Describe what you were comparing
  - ~ Was there a strong, okay, or weak correlation?
  - ~ Were you surprised by the results?

What other regressions have we learned about over the year?

Quadratic

$R^2$

Cubic

Exponential

1. Find each one of these regressions for your two relationships.
2. Using the r squared value, determine what type of function best fits the data.
3. Have your answers checked and then you can start your homework.

**Homework is Worksheet #1-5**