

# PA FINAL REVIEW

## Data & Probability

Name KEY

You reach your hand into a bag of beans to pick one: 11 are red, 20 black, and 30 white.

1) What is the probability of picking a red bean?

$$11 + 20 + 30 = 61$$

$$\frac{11}{61}$$

$$18\%$$

$$.18$$



2) What is the probability of picking a white or black bean?

$$\frac{30 + 20}{61} = \frac{50}{61}$$

$$82\%$$

$$.82$$



3) What is the probability of NOT picking a black bean?

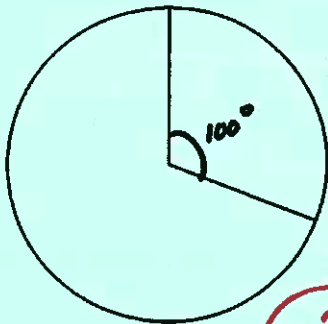
$$\frac{30 + 11}{61} = \frac{41}{61}$$

$$67\%$$

$$.67$$



4) A circle is  $360^\circ$ . What is the ratio of the shaded area to the whole circle?



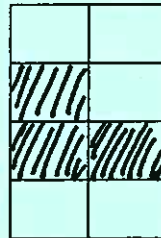
$$\frac{100}{360}$$

$$= \frac{5}{18}$$

$$.28$$



5) What is the ratio of the shaded rectangle to the whole rectangle?



$$\frac{3}{8}$$



6) There are 50 red coins and 50 white coins in a bag and you reach your hand in. What are the chances of picking a red coin?

$$\frac{50}{100} = \frac{1}{2} \text{ or } 50\%$$

You picked a red coin and didn't put it back in. What are the chances of picking a red coin again?

$$\frac{49}{99}$$

7) What are the chances of picking a Jack from a deck of cards?

$$\frac{4}{52} = \frac{1}{13}$$

4 jacks  
+ 52 cards

You don't replace the card and it wasn't a Jack. What are the chances of picking a Jack now?

$$\frac{4}{51}$$

8. Find the mean, median and mode from the following data.

~~1~~ ~~1~~ ~~2~~ ~~3~~ ~~4~~ ~~4~~ ~~5~~ ~~6~~ ~~7~~ ~~7~~ ~~7~~ ~~8~~ ~~9~~ ~~10~~

1, 1, 2, 3, 4, 4, 5, 6, 7, 7, 7, 8, 9, 10

$1+1+2+3+4+4+5+6+7+7+7+8+9+10$

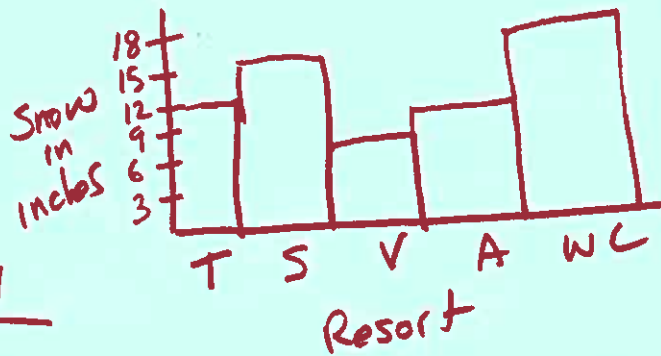
Mean =  $\frac{74}{14} = \frac{37}{7} = 5.29$

Median =  $\frac{5+6}{2} = 5.5$

Mode = 7

9. Construct a bar graph from the following chart. Then calculate the mean snowfall for all the resorts.

Resort	Snow in inches
Telluride	12
Steamboat	15
Vail	7
Aspen	9
Wolf Creek	17



Mean =  $\frac{12+15+7+9+17}{5} = 12 \text{ inches}$

10. Construct a stem & leaf plot from the following data.

~~11~~ ~~18~~ ~~19~~ ~~33~~ ~~38~~  
~~8~~ ~~28~~ ~~30~~ ~~18~~ ~~41~~  
~~14~~ ~~1~~ ~~26~~ ~~17~~ ~~25~~

Stem	Leaf
0	4 9
1	4 7 8 8 9
2	0 5 8
3	0 3 8
4	1 1

11. Here's some gas mileage data:

Miles	107.5	215	430
Gallons	5	10	20

Write an equation that represents this (Miles per gallon)

$$\frac{\text{miles}}{\text{gal}} = \frac{107.5}{5} = \frac{x}{1} \quad 21.5$$

$$y = 21.5x$$

Use the equation to determine how far you can go in 13 gallons.

$$y = 21.5(13)$$

$$= 279.5$$

How many gallons did it take to go 180 miles?

$$\frac{180}{21.5} = \frac{21.5x}{21.5}$$

$$x = 8.37 \text{ gallons}$$

$$\begin{array}{r} 215 \overline{) 1800} \\ \underline{1720} \phantom{0} \\ 800 \\ \underline{675} \phantom{0} \\ 1250 \end{array}$$

12. Here's some data on a corn stalk:

Height in Feet	3	6	9
Weeks	5	10	15

Write an equation that represents this (Feet per week)

$$\frac{\text{hght}}{\text{wks}} = \frac{3}{5} = \frac{x}{1} \quad y = .6x$$

$$y = \frac{3}{5}x$$

Use the equation to find out how many weeks it will take to get to 10 feet.

$$\cancel{y = \frac{3}{5}x} \quad 10 = \frac{3}{5}x$$

$$y = 16$$

$$x = 16.67 \text{ weeks}$$

At 7 weeks, how high was the corn stalk?

$$y = \frac{3}{5}(7)$$

$$y = \frac{21}{5}$$

$$y = 4.2 \text{ ft}$$

13. Here's some data on a prairie dog colony:

Prairie Dogs	700	1400	2100
Acres	4	8	12

Write an equation that represents this (Prairie Dogs per Acre)

$$\frac{PD}{Ac} = \frac{700}{4} = \frac{x}{1} \quad y = 175x$$

Use the equation to determine the number of prairie dogs in 5 acres.

$$y = 175(5)$$

$$y = 875 \text{ prairie dogs}$$

There are 1800 prairie dogs—how many acres?

$$1800 = 175x$$

$$\frac{1800}{175} = \frac{x}{1}$$

$$10.285$$

$$10.29 \text{ Acres}$$

14. Data on a manufacturer of guitars:

Days	2	4	8
# of Guitars	11	22	44

Write an equation that represents this (guitars per day).

$$\frac{G}{D} = \frac{11}{2} = \frac{x}{1} \quad y = 5.5x$$

Use the equation to determine the number of guitars in 7 days.

$$y = 5.5(7)$$

$$y = 38.5$$

$$\text{or } 38 \text{ guitars}$$

Round down because the half guitar doesn't count.

How long will it take to produce 100 guitars?

$$100 = 5.5x$$

$$\frac{100}{5.5} = \frac{x}{1}$$

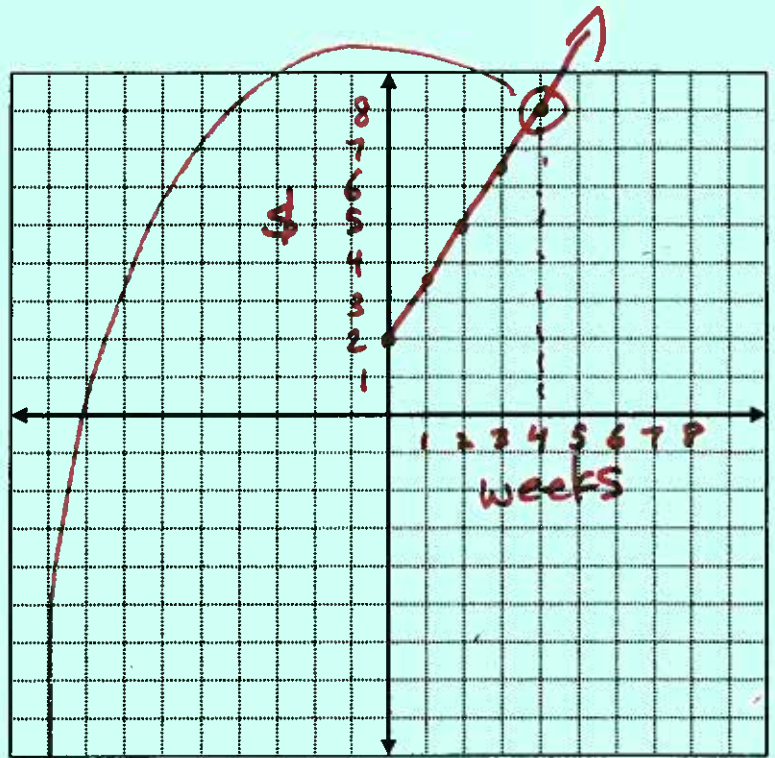
$$18.18$$

$$18.18 \text{ Days}$$

15. You have \$2 and can save \$1.50 a week.

1. Write an equation.
2. Plug in the x-values to get the y-values.
3. Plot the points and draw the line.
4. Answer the questions.

x	$y = 1.5x + 2$	y
0	$y = 1.5(0) + 2$	2
1	$1.5(1) + 2$	3.5
2	$1.5(2) + 2$	5



What does the "x" mean?

weeks

What does the "y" mean?

\$



Use the graph: When will you have \$8? (circle the point on the graph)

4 weeks

Use your equation: You saved for 15 weeks. How much money do you have?

$$y = 1.5(15) + 2$$

~~\$2~~ \$24.50

Katy found your mistake

