

6-7-17

Aim: SWBAT review for the final exam.

Do Now: Review Packet

HW: Final Exam Tuesday, June 13th

Textbook due on or before the final exam

Complete the following chart.

	Fraction	Decimal	Percent
	$\frac{7}{8}$	26) 0.875	27) 87.5%
28)	$2\frac{3}{20}$ OR $\frac{43}{20}$	2.15	29) 215%
30)	$\frac{1}{25}$	31) 0.04	4%
	$\frac{2}{3}$	32) $0.\overline{6}$	33) $66.\overline{6}\%$ OR $66\frac{2}{3}\%$
34)	$\frac{1}{50}$	0.02	35) 2%
36)	$\frac{7}{25}$	37) 0.28	28%

$$F \times 100 = \% \\ D \times 100 = \%$$

Solve Algebraically. One way to solve each of the following word problems is using the percent proportion. There are quicker methods, but beware, they also require a higher level of understanding.

- 38) Mary sold \$192 worth of greeting cards. If she received 25% commission on her sales, how much commission did she earn?

Let p = amount of commission

$$\frac{p}{192} = \frac{25}{100} \quad \frac{4800}{100} = \frac{100p}{100} \\ 48 = p$$

Mary earned \$48 commission.

- 39) Jenny bought a pair of boots priced at \$85. If the boots were on sale for 15% off the regular price, how much did Jenny pay for the boots?

Let p = amount of discount

$$\frac{p}{85} = \frac{15}{100} \quad \frac{1275}{100} = \frac{100p}{100} \\ 12.75 = p$$

discount = \$12.75

Sale Price = $85 - 12.75 = 72.25$

Jenny paid \$72.25 for the boots.

- 40) The regular price of a bicycle is \$99.50. If sales tax is 7.5%, how much is the bicycle including sales tax?

Let p = amount of tax

$$\frac{p}{99.50} = \frac{7.5}{100} \quad \frac{746.25}{100} = \frac{100p}{100}$$

$$7.4625 = p$$

$$\text{tax} = \$7.46$$

$$\text{Total} = 99.50 + 7.46 = 106.96$$

The bicycle costs \$106.96.

- 41) There are 350 people at a luncheon. If 12% of the people will win a door prize, how many door people will win a door prize?

Let p = # of people who will win

$$\frac{p}{350} = \frac{12}{100}$$

$$\frac{4200}{100} = \frac{100p}{100}$$

$$42 = p$$

42 people will win a door prize.

- 42) Jen's bill at a restaurant before tax and tip is \$22. If tax is 5.25% and she wants to leave 15% of the bill including the tax for a tip, how much will she spend in total?

Let p = amount of tax

$$\frac{p}{22} = \frac{5.25}{100}$$

$$1.155 = p$$

$$\text{tax} = \$1.16$$

$$\text{bill} = 22 + 1.16 = 23.16$$

Let p = amount of tip

$$\frac{p}{23.16} = \frac{15}{100}$$

$$3.474 = p$$

$$\text{tip} = \$3.47$$

$$\text{Total} = 23.16 + 3.47$$

$$= \$26.63$$

- 43) A \$300 mountain bike is discounted by 30%, and there is a 8% sales tax. Find the final cost of the mountain bike.

Find the discount first:

Let n = amount of discount

$$\frac{n}{300} = \frac{30}{100}$$

$$90 = n$$

The discount is \$90

$$\$300 - \$90 = \$210$$

Now find the sales tax on the discounted price:

Let n = amount of tax

$$\frac{n}{210} = \frac{8}{100}$$

$$16.8 = n$$

The tax is \$16.80.

$$\$210 + \$16.80 = \$226.80$$

- 44) Michael borrowed \$1750 from his brother to buy a computer. He agreed to repay the money in $2\frac{1}{2}$ years at 8.75% interest. How much interest will he pay? What is the total amount of money Michael will have to repay his brother?

$$I = PRT$$

$$I = (1750)(0.0875)(2.5)$$

$$I = 382.8125$$

$$I = \$382.81$$

$$\text{Total} = P + I$$

$$T = 1750 + 382.81$$

$$\text{Total} = \$2132.81$$

- 45) Michelle started a bank account that earns 12.25% interest. After $1\frac{1}{2}$ years, she earned \$147 in interest. How much money did Michelle start her bank account with?

$$I = PRT$$

$$147 = P(0.1225)(1.5)$$

$$\frac{147}{0.18375} = \frac{0.18375P}{0.18375}$$

$$800 = P$$

She started her bank account with \$800.

- 46) When John got his puppy, she weighed 8 pounds. Now that she is one year old, her weight is 60 pounds. What is the percent increase in the puppy's weight?

Let $R = \% \text{ increase}$ $\frac{5200}{8} = \frac{8r}{8}$

$$* \frac{52}{8} = \frac{r}{100}$$

$$650 = r \rightarrow R = 650\%$$

It's a 650% increase in weight.

- 47) Irene thinks she has the space for a 45-inch-wide bookcase. It turns out that she only has space for a 40-inch-wide bookcase. What is the percent error in Irene's measurement? Let $R = \% \text{ error}$

$$* \text{Percent error} = \frac{5}{40} \times 100$$

$$\text{Percent error} = 12.5\%$$

Percent error = 12.5%

- 48) The planners of a school carnival estimate that they will sell 500 hot dogs. They only sell 400. What is the percent error in their estimate?

Let $R = \% \text{ error}$

$$\text{Percent error} = \frac{100}{400} \times 100$$

$$\text{Percent error} = 25\%$$

Percent error = 25%

- 49) If the original price of a sweater was \$75.99. The sweater is now on sale for \$62.50, what was the percent decrease in the price of the sweater? (Round to the nearest 0.1%)

Let $R = \% \text{ increase}$

$$\frac{13.49}{75.99} = \frac{r}{100} \quad \frac{1349}{75.99} = \frac{75.99r}{75.99}$$

$$17.7523... = r$$

$$R \approx 17.8\%$$

The price decreased about 17.8%.

Unit 4: Statistical Analysis & Probability

PROBABILITY

There are 2 kinds of events: **Independent Events** and **Dependent Events**.

Independent Events - 1st event **does not** affect the 2nd event

Dependent Events - 1st event **does** affect the 2nd event

Probability is a ratio, a comparison of 2 numbers. $\frac{\text{NUMBER OF POSSIBLE OUTCOMES}}{\text{NUMBER OF TOTAL OUTCOMES}}$

EXPERIMENTAL PROBABILITY = $\frac{\text{NUMBER OF FAVORABLE OUTCOMES}}{\text{NUMBER OF TRIALS}}$

Total = 20 pens

A box contains 5 green pens, 3 blue pens, 8 black pens, and 4 red pens. A pen is picked at random. Answer questions 1-9 using the above information.

- 1) P (blue or red) $\frac{3+4}{20} = \frac{7}{20}$ 2) P (gold) 0 (impossible) 3) P (green) $\frac{1}{4}$
 4) P (green, blue, black, or red) 1 (certain)

- 5) P (blue **and** green) **with** replacement $\frac{3}{20} \cdot \frac{5}{20} = \frac{3}{80}$ #5
 6) P (green and red) **with** replacement $\frac{5}{20} \cdot \frac{4}{20} = \frac{1}{20}$ #6
 7) P (green and red) **without** replacement $\frac{5}{20} \cdot \frac{4}{19} = \frac{1}{19}$ #7
 8) P (blue, black, and green) **without** replacement $\frac{3}{20} \cdot \frac{8}{19} \cdot \frac{5}{18} = \frac{1}{57}$ #8
 9) P (black and blue) **with** replacement $\frac{8}{20} \cdot \frac{3}{20} = \frac{3}{50}$ #9

- 10) A spinner has four sections: a tree, a flower, a cloud and a sun. Jordan spins the pointer on the spinner 20 times. The pointer lands on the tree 3 times, the flower 9 times, the cloud 2 times and the sun 6 times.

A) Based on the experiment, what is the probability the spinner lands on the sun?

$$\frac{6}{20} = \frac{3}{10}$$

B) If Jordan spins the spinner 150 times, how many times should she expect it to land on the sun?

Let n = # of times expected to land on the sun

$$\frac{6}{20} = \frac{n}{150}$$

$$\frac{900}{20} = \frac{20n}{20}$$

$$45 = n$$

Let n = # of times expected to land on the sun

$$n = \frac{6}{20} \times 150$$

$$n = 45$$

You would expect the spinner to land on the sun 45 times

- 11) A number cube is rolled 50 times. The table at the right shows the results of the experiment. Based on these results, which is a reasonable prediction for the number of times an even number will be rolled in 10,000 trials?

Number	Number of Rolls
1	6
2	12
3	8
4	15
5	2
6	7

- A about 700
- B about 3,500
- C about 5,000
- D about 7,000**

$$\frac{34}{50} \times 10,000 = 6800$$

Total = 50 rolls

- 12) Whitney has a choice of a floral, plaid, or striped blouse to wear with a choice of tan, black, navy, or white skirt. How many different outfits can she make?

$$\frac{3}{\text{blouses}} \times \frac{4}{\text{skirts}} = 12$$

12 outfits

- 13) You flip 3 coins. How many possible outcomes are there?

$$\frac{2}{\text{coin \#1}} \times \frac{2}{\text{coin \#2}} \times \frac{2}{\text{coin \#3}} = 8$$

8 outcomes

STATISTICS

- 14) Find the MEAN, MEDIAN, MODE, and RANGE of the following set of data: Show work.

15, 12, 21, 18, 25, 11, 17, 19, 20

mean $\rightarrow \frac{158}{9} = 17.\bar{5}$

median $\rightarrow 11, 12, 15, 17, \mathbf{18}, 19, 20, 21, 25$

range $\rightarrow 25 - 11 = 14$

mean = $17.\bar{5}$

median = 18

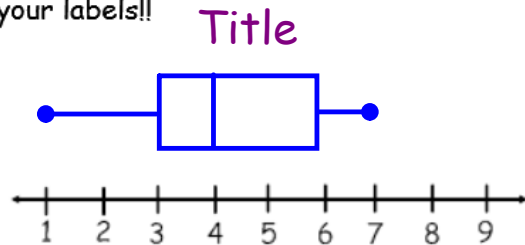
mode = none

range = 14

- 15) Find the median, upper and lower quartiles and the extremes, and then create a box plot to display the following data set. Remember your labels!!

1, 3, 5, 4, 3, 6, 2, 7, 6, 4

1, 2, $\mathbf{3}$, 3, $\mathbf{4, 4}$, 5, $\mathbf{6}$, 6, 7



median = 4

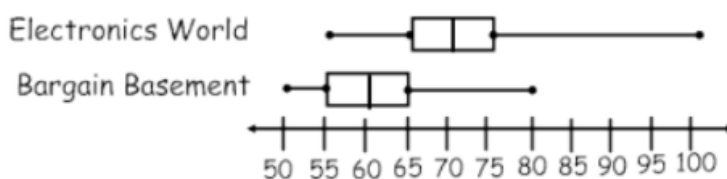
of items

lower extreme = 1 1st Quartile = 3

upper extreme = 7 3rd Quartile = 6

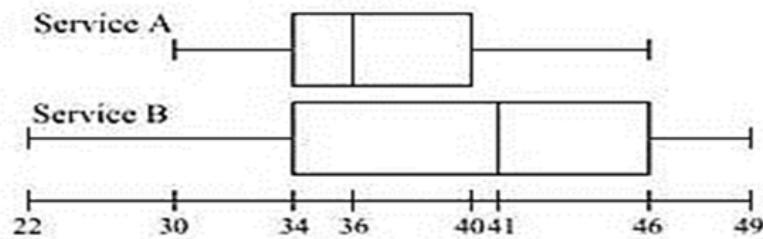
- 16) The double box plot shows the costs of MP3 players at two different stores.

On average which department store charges more for an MP3 player?



Electronics World

The following box whiskers diagrams represents how many minutes it take a cleaning service to clean the same house. Answer questions 17 - 20 below based on the data from the diagram.



- 17) On average, what service appears to clean the house faster? A explain why?
It's median time is 5 minutes faster, it also has a lower range and IQR (inter-quartile range)
- 18) Which service would you say is more consistent? A explain why? It's median time is 5 minutes faster, it also has a lower range and IQR (inter-quartile range) so it's data are more clustered together.
- 19) What percent of the time did service B finish under 41 mins? 50%
- 20) What percent of the time did service A clean at least 34 mins? 75%

Unit 5: Geometry

ANGLE RELATIONSHIPS

Complementary angles - Two angles are complementary if the **sum** of their angle measures is **90°**

Supplementary angles - Two angles are supplementary if the **sum** of their angle measures is **180°**

Vertical Angles - congruent angles formed by 2 intersecting lines. They are opposite each other

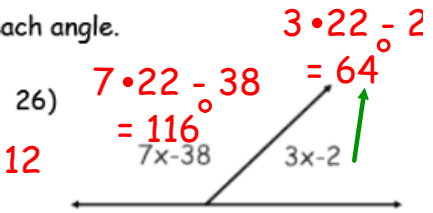
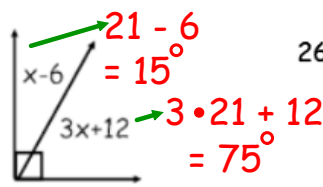
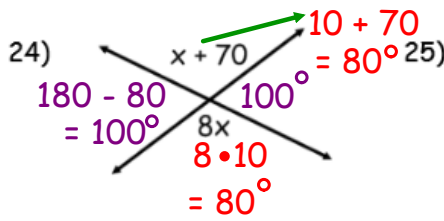
Alternate interior angles - interior angles on opposite sides of the transversal. (\cong if lines are parallel)

Alternate exterior angles - exterior angles on opposite sides of the transversal. (\cong if lines are parallel)

Corresponding angles - hold the same position on 2 different lines. (congruent if lines are parallel)

- 21) Find the complement of a 40° angle. 50°
- 22) Find the supplement of a 55° angle. 125°
- 23) Two angles are vertical angles. If one of the angles measure 135° , what is the measure of the other angle?
 135°

Solve for x ALGEBRAICALLY, and then find the measure of each angle.



vertical angles

$$\begin{array}{r} 8x = x + 70 \\ -1x \quad -x \\ \hline 7x = 70 \\ \hline x = 10 \end{array}$$

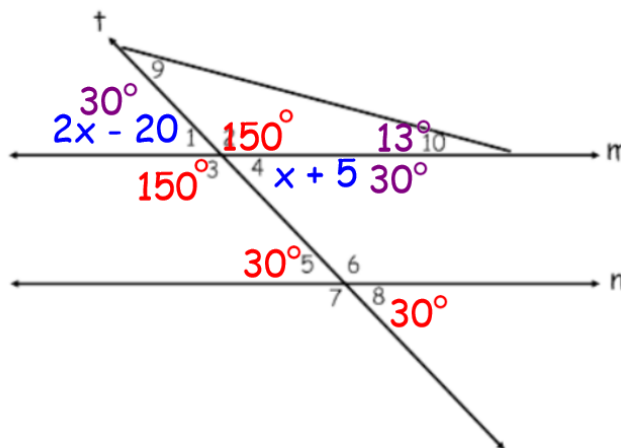
complementary

$$\begin{array}{r} 3x + 12 + x - 6 = 90 \\ 4x + 6 = 90 \\ -6 \quad -6 \\ \hline 4x = 84 \\ \hline x = 21 \end{array}$$

supplementary

$$\begin{array}{r} 7x - 38 + 3x - 2 = 180 \\ 10x - 40 = 180 \\ +40 \quad +40 \\ \hline 10x = 220 \\ \hline x = 22 \end{array}$$

Use the diagram below and the given information to answer questions 27 - 36.



Given:

Line $m \parallel$ Line n
 t is a transversal
 $m \angle 1 = 2x - 20$
 $m \angle 4 = x + 5$
 $m \angle 10 = 13^\circ$

vertical angles

$$\begin{array}{r} 2x - 20 = x + 5 \\ -1x \quad -x \\ \hline 1x - 20 = 5 \\ +20 \quad +20 \\ \hline 1x = 25 \\ x = 25 \end{array}$$

- 27) Find the value of x. $x = 25$
 28) Find the $m \angle 4$. 30°
 29) Find the $m \angle 2$. 150° Justify It is supplementary to $\angle 4$ or $\angle 1$
 30) Find the $m \angle 3$. 150° Justify Vertical to $\angle 2$ OR supp. to $\angle 4$ or $\angle 1$
 31) Find the $m \angle 5$. 30° Justify Alt. interior to $\angle 4$ OR corresponding to $\angle 1$
 32) Find the $m \angle 8$. 30° Justify Vertical to $\angle 5$ OR alt. exterior to $\angle 1$ OR
 33) $\angle 1 \cong \angle 8$. Justify They are alternate exterior corresponding to $\angle 4$
 34) $\angle 3 \cong \angle 6$. Justify They are alternate interior
 35) $\angle 1 \cong \angle 5$. Justify They are corresponding
 36) Find the $m \angle 9$. 17° *The sum of the 3 angles of a triangle is 180°