

8th grade math final

Name _____

Mrs. Roumbos

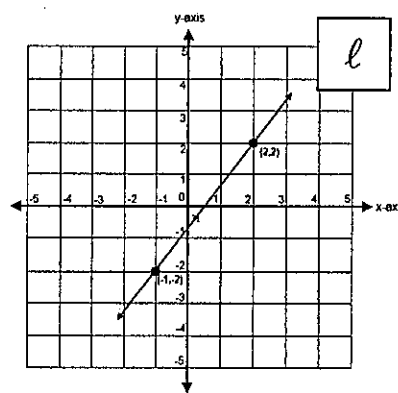
Date _____

8R Period _____

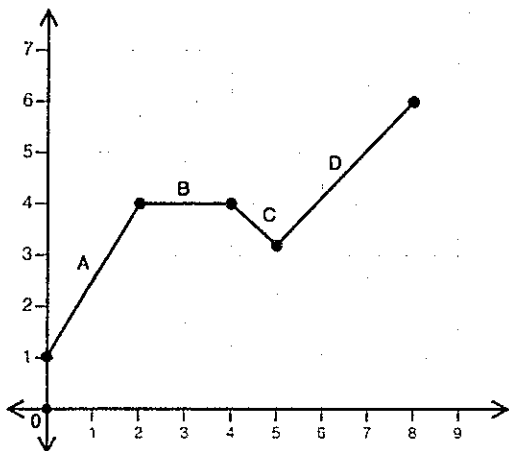
Review for Part I Quiz

1) Point A has coordinates (3,8). After a **dilation**, the coordinates of point A' are (6,16). What is the scale factor for the dilation?

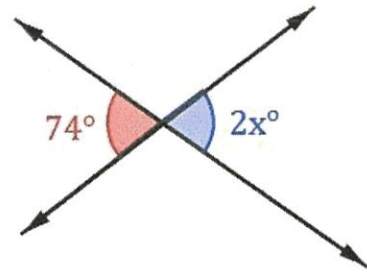
2) What is the rate of change of line l shown in the accompanying diagram?



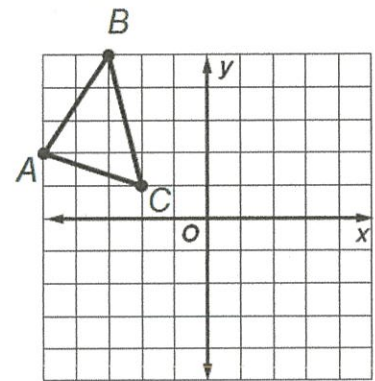
3) In which interval is the graph below linear and increasing?



4) What is the value of x in the diagram shown?



5) Triangle ABC is translated 2 units right and 4 units down.
What are the coordinates of A' ?



6) Which of the following is a **rational** number?

$$\frac{5}{6}$$

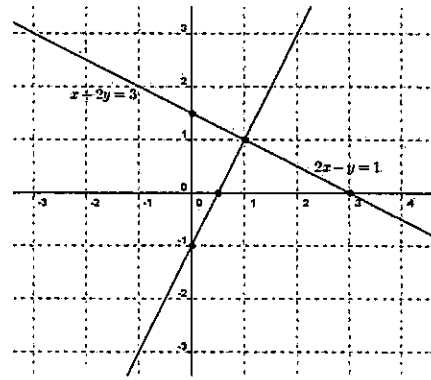
$$\sqrt{13}$$

$$\sqrt{26}$$

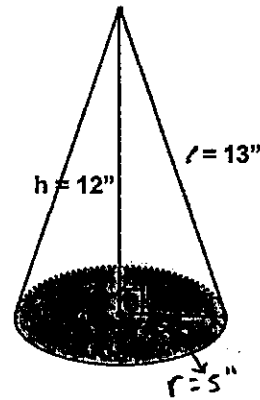
7) What is the equation for the line passing through the points $(4, 0)$ and $(0, 2)$?

8) How many solutions does the equation $4x - 10 = 4x + 6$ have?

9) Which ordered pair is a solution to the system of equations shown below?



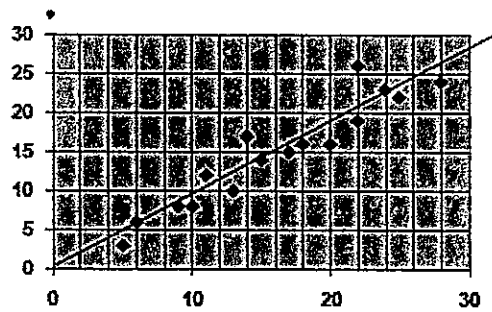
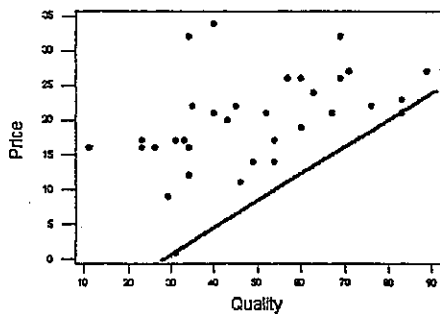
10) Which is the volume of the cone shown? Round to the nearest tenth



11) Does the following represent a function? $\{(6, 2), (12, 5), (5, 8)\}$

12) Evaluate: $x^6 \cdot x \cdot x^{-3}$

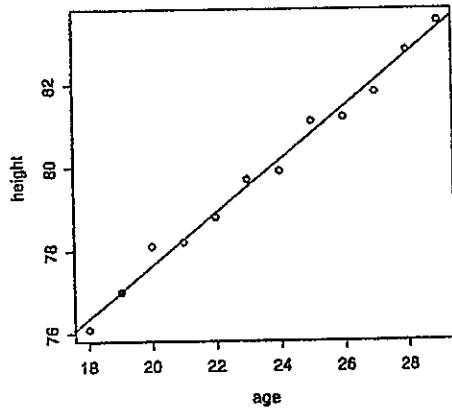
13) Which graph shows the correct line of best fit for the data ?



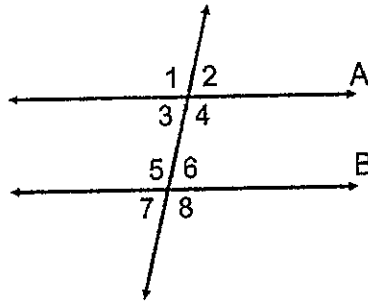
14) Expressed in scientific notation, 0.000085 is equivalent to:

15) Mike's weekly earnings are described by the equation $y = 10x + 30$, where x is the number of hours he works. If Mike earned \$330 one week, how many hours did he work?

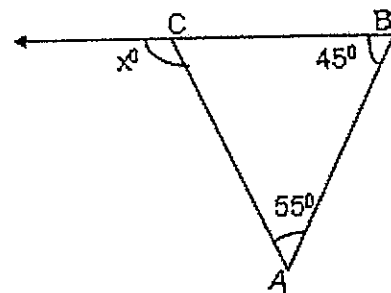
16) Using the trend line, what would someone's height be at 22 yrs old?



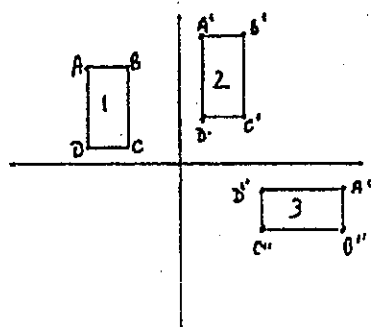
17) Lines A and B are parallel lines. The $m \angle 3$ is 50° . Find the $m \angle 6$.



18) Find the value of x in the diagram shown.



19) Which sequence of transformations maps figure 1 onto figure 2 and then figure 2 onto figure 3?



20) What ordered pair is the solution of the system shown?

$$\begin{aligned}4x + 3y &= -1 \\5x - 3y &= 19\end{aligned}$$

21) The equation of a line is $y = -5x - 5$. Which point lies on the line?

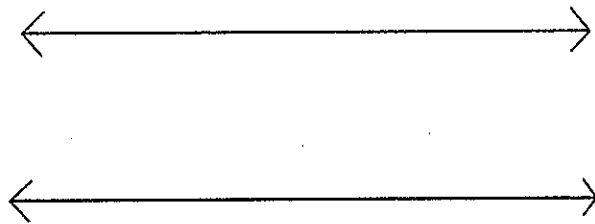
- a) (3, 10) b) (2, -7) c) (6, -35)

22) Solve for x:

$$5.5x + 0.7 = 3.5x + 8.7$$

23) If two sides of a right triangle measure 15 feet and 20 feet, what is the length its the hypotenuse?

24) How many solutions does the following system have?

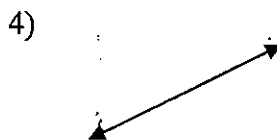
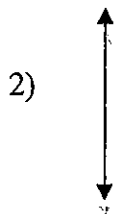
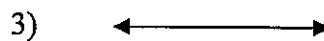
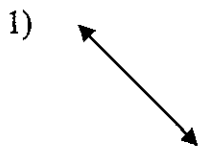


25) If Nick walks at a speed of 4.6 miles in 2 hours, how many miles does Nick walk per hour?

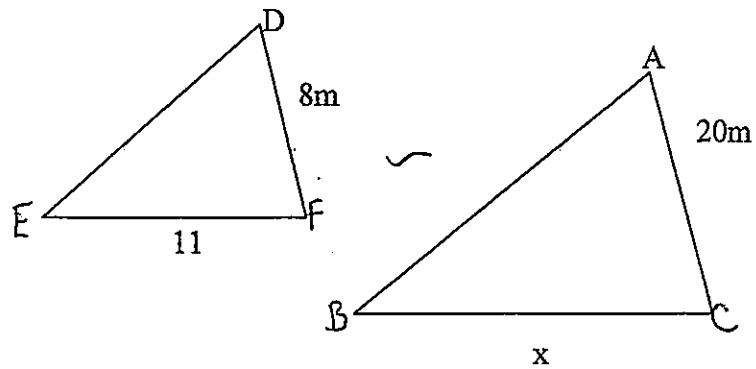
26) What is the solution to the equation below?

$$\frac{6}{7}(7x - 21) = 30$$

27) Which of the following lines has a slope of zero?



28) Find the value of x , to the nearest tenth, if $\triangle DEF$ is similar to $\triangle ABC$



29) Mr. Smith is buying two types of gift cards to give as prizes to employees at a company meeting. He will buy restaurant gift cards that each cost \$55. He will also buy movie theater gift cards that each cost \$20. He has \$610 to buy a total of 13 gift cards. How many of each type of gift cards can Mr. Smith buy?

- 1) He can buy 5 restaurant gift cards and 8 movie theater gift cards.
- 2) He can buy 10 restaurant gift cards and 3 movie theater gift cards.
- 3) He can buy 6 restaurant gift cards and 7 movie theater gift cards.
- 4) He can buy 11 restaurant gift cards and 2 movie theater gift cards.

30) Solve for a if $a^3 = 729$

Name Kelly
Mrs. Roubos

Date _____
8R Period _____

Review for Part I Quiz

1) Point A has coordinates (3,8). After a **dilation**, the coordinates of point A' are (6,16). What is the scale factor for the dilation?

$$\frac{6}{3} = 2 \quad \frac{16}{8} = 2$$

→ multi
The scale factor is 2

$$3 \cdot 2 = 6 \quad 8 \cdot 2 = 16$$

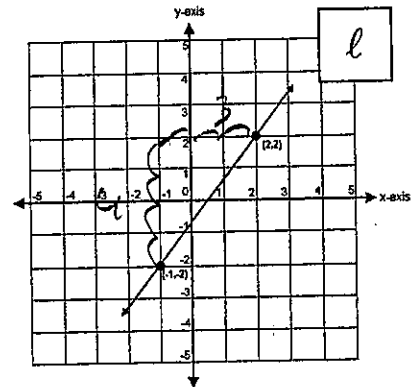
$$A(3,8) \rightarrow A'(6,16)$$

2) What is the rate of change of line l shown in the accompanying diagram?

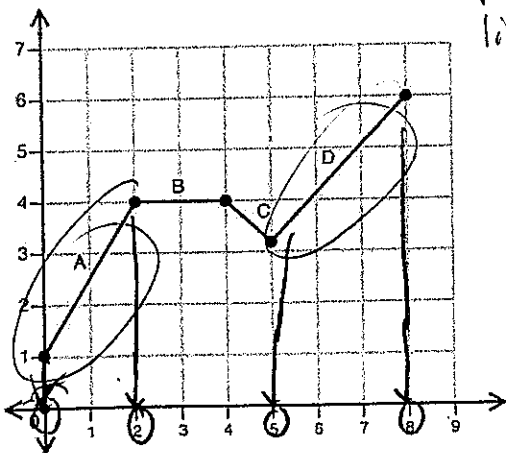
↓
slope

$$\frac{\Delta y}{\Delta x} = m = \frac{\text{rise}}{\text{run}}$$

$$\boxed{\frac{4}{3}}$$



3) In which interval is the graph below linear and increasing?



↓
line

↓
positive slope

Interval A + D

Between $x=0$ + $x=2$

and

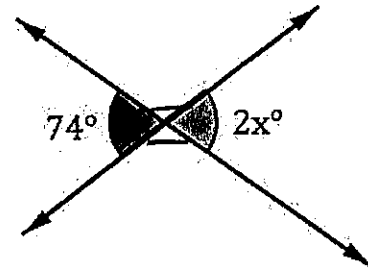
Between $x=5$ + $x=8$

4) What is the value of x in the diagram shown?

Vertical angles
are congruent

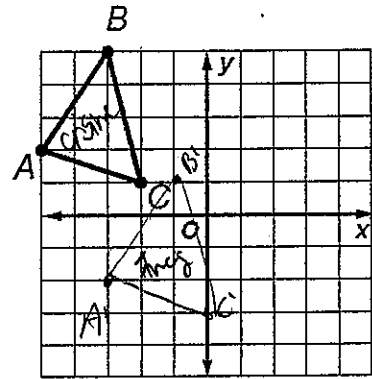
$$\frac{74}{2} = \frac{2x}{2}$$

$$x = 37$$



5) Triangle ABC is translated 2 units right and 4 units down.
What are the coordinates of A' ?

$$A'(-3, -2)$$



6) Which of the following is a rational number?

$$\frac{5}{6} = 0.8\bar{3}$$

Fraction!

$$\sqrt{13}$$

repeating or terminating decimal

$$\sqrt{26}$$

7) What is the equation for the line passing through the points $(4, 0)$ and $(0, 2)$?

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$m = \frac{0 - 2}{4 - 0}$$

$$m = -\frac{2}{4} \quad m = -\frac{1}{2}$$

$$(4, 0) \quad m = -\frac{1}{2}$$

$$y = mx + b$$

$$0 = (-\frac{1}{2})(4) + b$$

$$0 = -2 + b$$

$$b = 2$$

y-intercept or $x=0$
 $y = mx + b$
 $m = -\frac{1}{2}$

$$b = 2$$

$$y = -\frac{1}{2}x + 2$$

8) How many solutions does the equation $4x - 10 = 4x + 6$ have?

Must move
the variables
1st

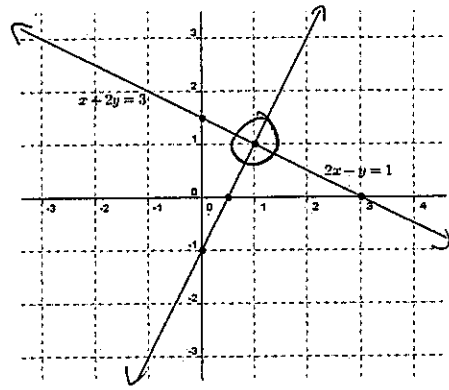
$$\begin{array}{r} 4x - 10 = 4x + 6 \\ -4x \quad -4x \\ \hline -10 = 6 \end{array}$$

No solutions / zero / none

9) Which ordered pair is a solution to the system of equations shown below?

(1, 1)

Where the 2 lines intersect



10) Which is the volume of the cone shown? (nearest tenth)

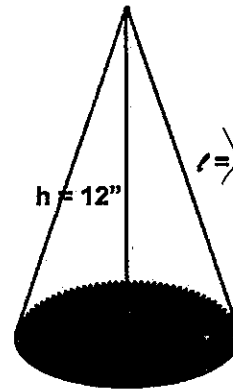
$$V = \frac{1}{3} \pi r^2 h$$

use the π button

$$V = \frac{1}{3} \cdot (\pi) \cdot 5^2 \cdot 12$$

$$V = \frac{1}{3} \cdot (\pi) \cdot 25 \cdot 12$$

$$V = 314.2 \text{ in}^3$$



~~r = 13~~ extra info don't need (the slant)

11) Does the following represent a function? $\{(6, 2), (12, 5), (5, 8)\}$

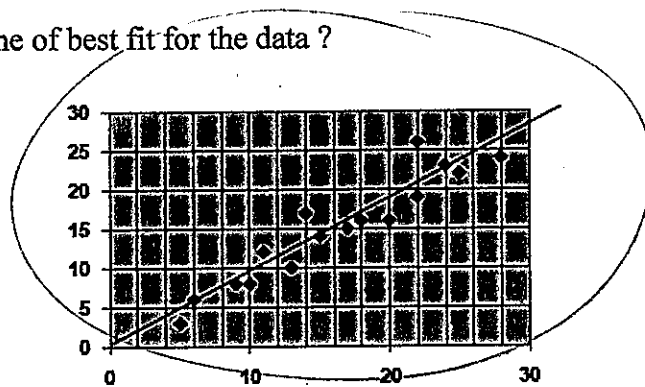
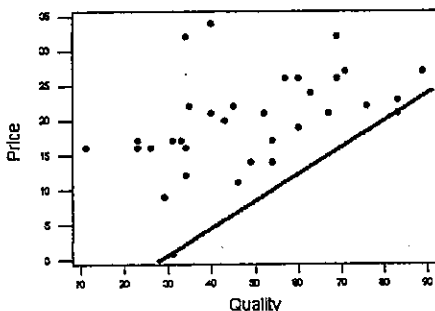
(yrs) b/c the x-values don't repeat

12) Evaluate: $x^6 \cdot x^1 \cdot x^{-3}$

keep the base
- Add the exponents

$$x^{6+1-3} = x^4$$

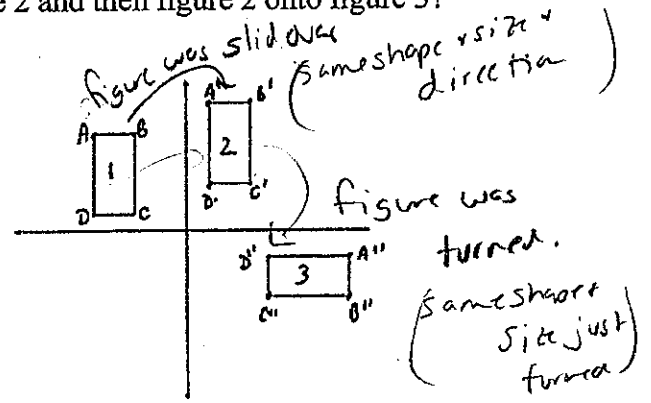
13) Which graph shows the correct line of best fit for the data?



the line must be in the middle of the dots.

19) Which sequence of transformations maps figure 1 onto figure 2 and then figure 2 onto figure 3?

1 → 2 Translation
2 → 3 Rotation



20) What ordered pair is the solution of the system shown?

Add the equations

$$\begin{array}{r} 4x + 3y = -1 \\ + 5x - 3y = 19 \\ \hline 9x = 18 \\ \frac{9x}{9} = \frac{18}{9} \\ x = 2 \end{array}$$

$$\begin{array}{r} 4x + 3y = -1 \\ 4(2) + 3y = -1 \\ 8 + 3y = -1 \\ -8 \quad -8 \\ \hline 3y = -9 \\ \frac{3y}{3} = \frac{-9}{3} \\ y = -3 \end{array}$$

(2, -3)

21) The equation of a line is $y = -5x - 5$. Which point lies on the line?

a) (3, 10)
x y

$$\begin{array}{l} y = -5x - 5 \\ 10 = -5(3) - 5 \\ 10 = -15 - 5 \\ 10 \neq -20 \end{array}$$

b) (2, -7)
x y

$$\begin{array}{l} y = -5x - 5 \\ -7 = -5(2) - 5 \\ -7 = -10 - 5 \\ -7 \neq -15 \end{array}$$

c) (6, -35)
x y

$$\begin{array}{l} y = -5x - 5 \\ -35 = -5(6) - 5 \\ -35 = -30 - 5 \\ -35 = -35 \end{array}$$

Guess & check!

22) Solve for x:

$$\begin{array}{r} 5.5x + 0.7 = 3.5x + 8.7 \\ -3.5x \quad -3.5x \\ \hline 2x + 0.7 = 8.7 \\ -0.7 \quad -0.7 \\ \hline 2x = 8 \\ \frac{2x}{2} = \frac{8}{2} \\ x = 4 \end{array}$$

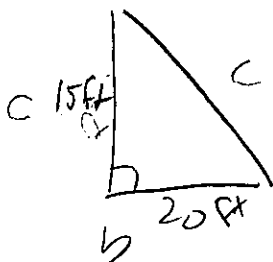
Distribute (multiply)

Combine like terms on the same side / same operation

Move the smaller variable to larger (opposite side) / opp. opera.

Solve the remaining equation

23) If two sides of a right triangle measure 15 feet and 20 feet, what is the length its the hypotenuse?



$$\begin{array}{l} a^2 + b^2 = c^2 \\ 15^2 + 20^2 = c^2 \\ 225 + 400 = c^2 \end{array}$$

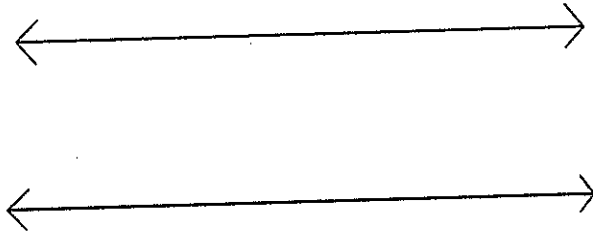
Must be c!

$$\sqrt{625} = \sqrt{c^2} \rightarrow$$

$$c = 25 \text{ ft}$$

2 no x 2

24) How many solutions does the following system have?



zero solutions
 B/c they
 never
 intersect

25) If Nick walks at a speed of 4.6 miles in 2 hours, how many miles does Nick walk per hour?

Divide
 the 2 #'s

$$\frac{4.6 \text{ mi}}{2 \text{ hr}} = 2.3 \text{ mph}$$

26) What is the solution to the equation below?

D
 C
 M
 S

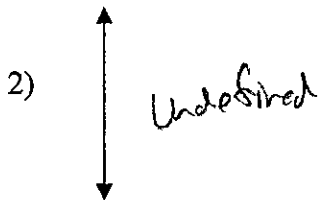
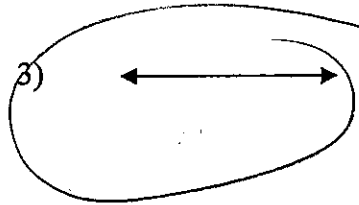
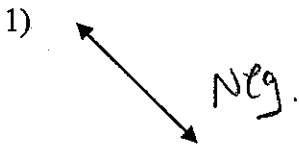
$$\frac{6}{7}(7x - 21) = 30$$

$$6x - 18 = 30$$

$$\begin{array}{r} +18 \quad +18 \\ \hline 6x = 48 \\ \frac{6x}{6} = \frac{48}{6} \\ \boxed{x = 8} \end{array}$$

A/C

27) Which of the following lines has a slope of zero? → horizontal line



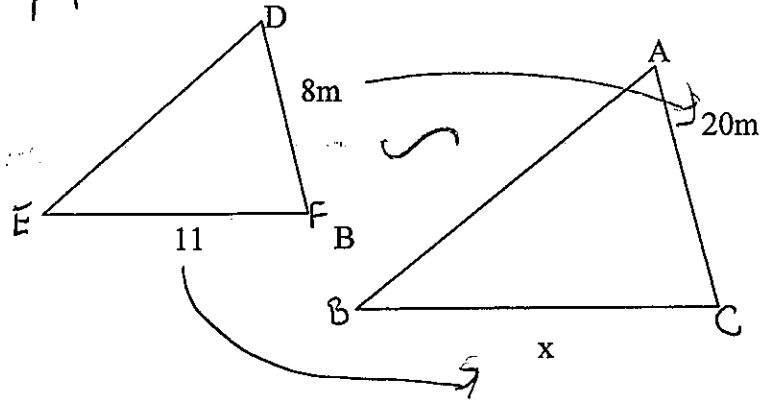
28) Find the value of x , to the nearest tenth, if $\triangle DEF$ is similar to $\triangle ABC$

Set up a proportion & solve!

$$\frac{11}{8} = \frac{8}{20}$$

$$\frac{8x}{8} = \frac{220}{8}$$

$$x = 27.5$$



29) Mr. Smith is buying two types of gift cards to give as prizes to employees at a company meeting. He will buy restaurant gift cards that each cost \$55. He will also buy movie theater gift cards that each cost \$20. He has \$610 to buy a total of 13 gift cards. How many of each type of gift cards can Mr. Smith buy?

★ guess + check

1) He can buy 5 restaurant gift cards and 8 movie theater gift cards.

$$\begin{array}{r} 55 \\ \times 5 \\ \hline 275 \end{array}$$

$$\begin{array}{r} 20 \\ \times 8 \\ \hline 160 \end{array}$$

$$\begin{array}{r} 275 \\ +160 \\ \hline 435 \end{array}$$

2) He can buy 10 restaurant gift cards and 3 movie theater gift cards.

$$\begin{array}{r} 55 \\ \times 10 \\ \hline 550 \end{array}$$

$$\begin{array}{r} 20 \\ \times 3 \\ \hline 60 \end{array}$$

$$\begin{array}{r} 550 \\ +60 \\ \hline 610 \end{array}$$

3) He can buy 6 restaurant gift cards and 7 movie theater gift cards.

4) He can buy 11 restaurant gift cards and 2 movie theater gift cards.

30) Solve for a if $a^3 = \sqrt[3]{729}$

$$a = 9$$

$$3 \quad 2nd \quad 1 \quad 729 \quad (=)$$

