8th grade math final

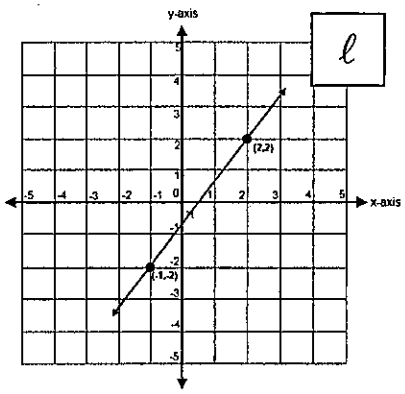
Name_____ Date_____

Mrs. Roumbos 8R Period_____

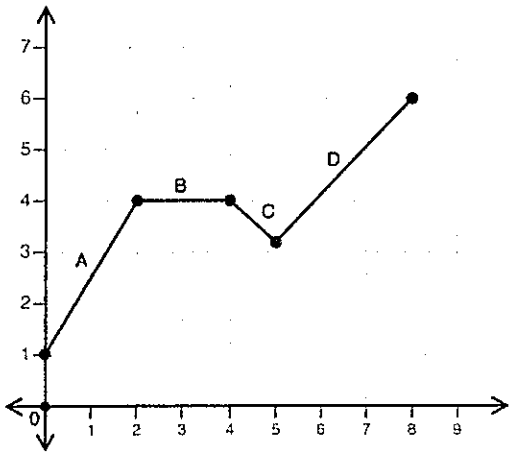
Review for Part I Quiz

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?

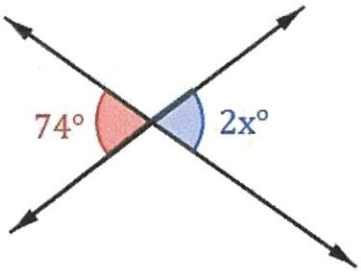
2) What is the rate of change of line ℓ shown in the accompanying diagram?



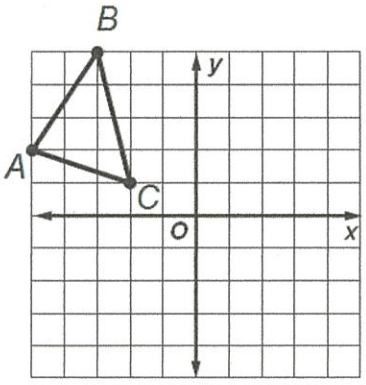
3) In which interval is the graph below linear and increasing?



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'?



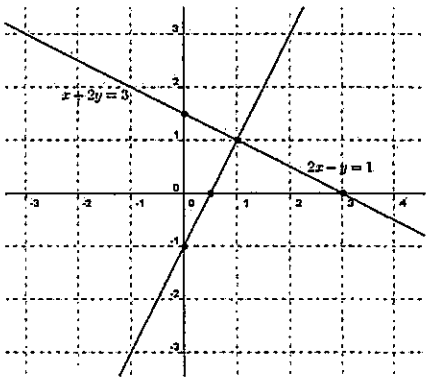
6) Which of the following is a **rational** number?

$\frac{5}{6}$ $\sqrt{13}$ $\sqrt{26}$

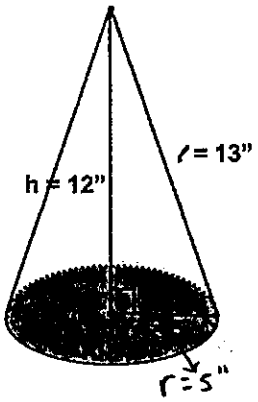
7) What is the <u>equation</u> for the line passing through the points (4, 0) and (0,2) ?

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?



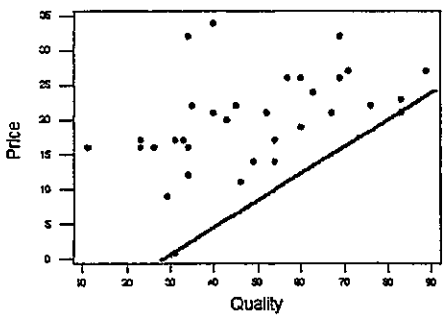
10) Which is the volume of the cone shown? Round to the nearest tenth

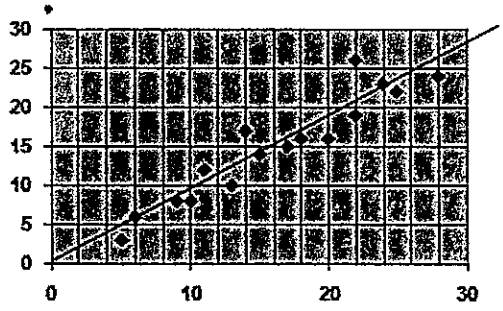


11) Does the following represent a function? $\{(6,2),(12,5),(5,8)\}$

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

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

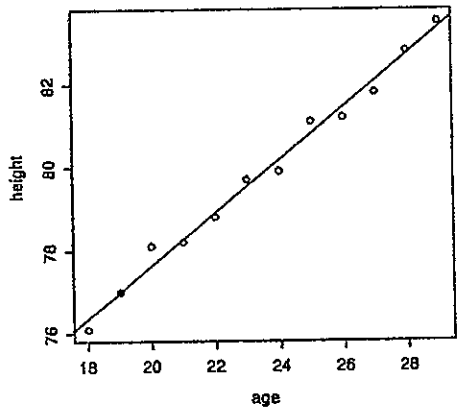




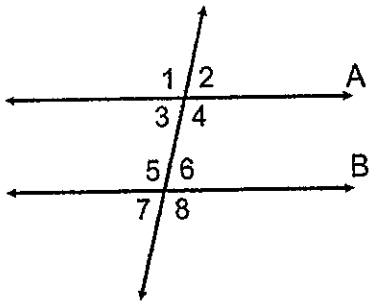
14) Expressed in scientific notation, 0.000085 is equivalent to:

15) Mike's weekly earning 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?

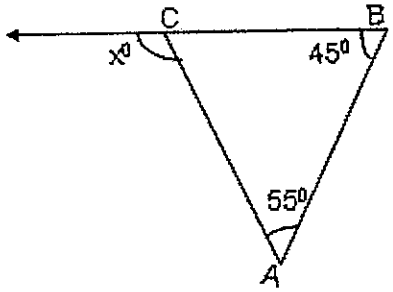
16) Using the trend line, what would someone's height be at 22 yrs old?



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



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



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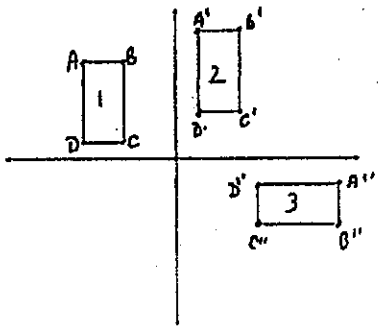


20) What ordered pair is the solution of the system shown?

$$4x + 3y = -1$$
$$5x - 3y = 19$$

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

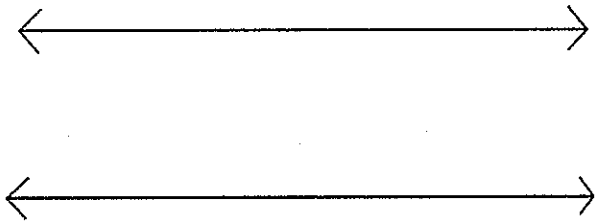
a) (3, 10) b) (2, -7) c) (6,-35)

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?

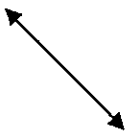


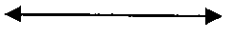
25) If Nick walks at a speed of 4.6 miles in 2 hours, how many miles does Nick walk per hour?

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?

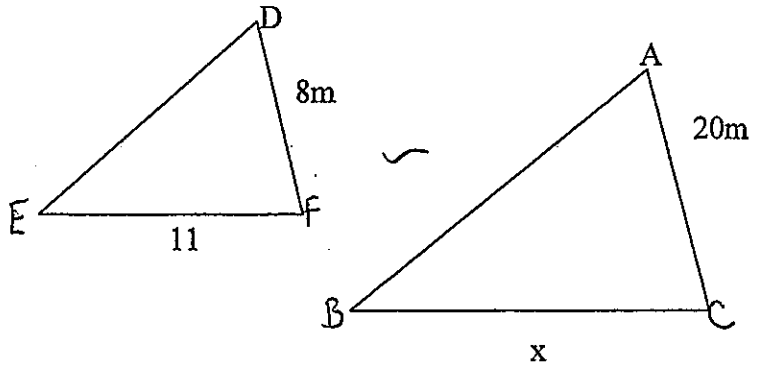
1) 

3) 

2) 

4) 

28) Find the value of x, to the nearest tenth, if ΔDEF is similar to. ΔABC



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 Key
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?

↗ multiply

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

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

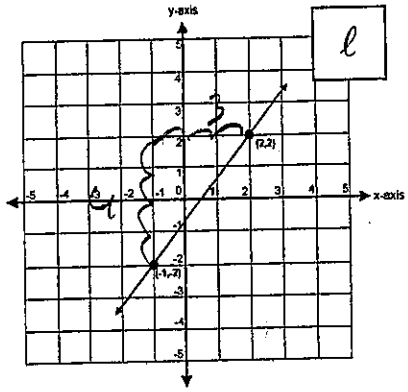
The scale factor is 2

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

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

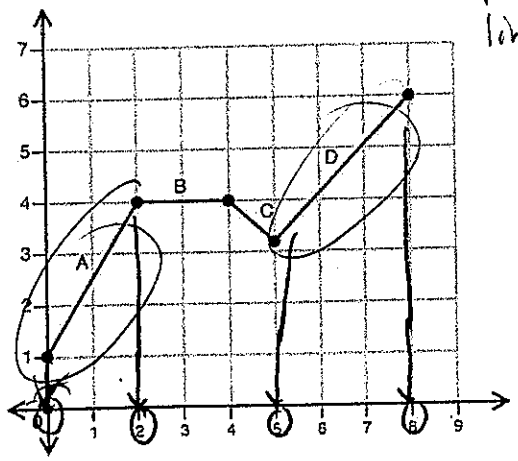
↓ slope

$\frac{\Delta y}{\Delta x}$ $m = \frac{\text{rise}}{\text{run}}$ $\frac{4}{3}$



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

↓ line ↓ positive slope



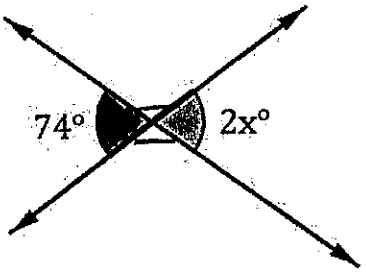
Interval A to D

Between $x=0$ & $x=2$

and

Between $x=5$ & $x=8$

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

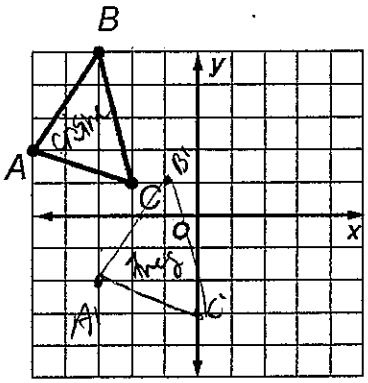


Vertical angles are congruent

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

$x = 37$

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?

repeating or terminating decimal

$\frac{5}{6}$ $-.8\overline{3}$ $\sqrt{13}$ $\sqrt{26}$

Fraction!

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

$x_1\ y_1 \quad x_2\ y_2$

$m = \frac{y_2 - y_1}{x_2 - x_1}$ $m = \frac{2-0}{0-4}$ $m = \frac{2}{-4}$ $m = -\frac{1}{2}$

y-intercept b/c 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

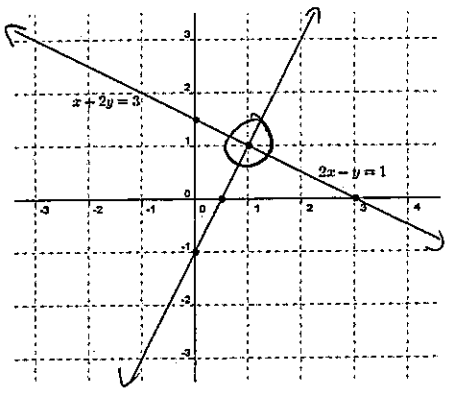
$-4x \quad -4x$

$-10 \neq 6$

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)

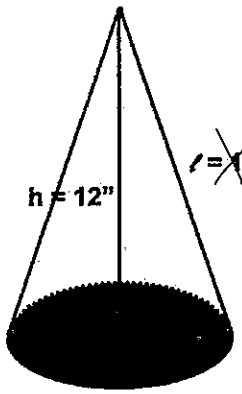
✱ use the π button

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

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

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

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



✓ extra info don't need (the slant)

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

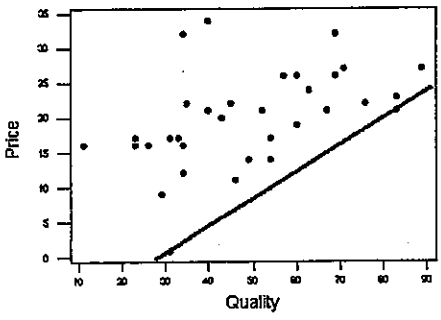
yrs! B/c the x-values don't repeat

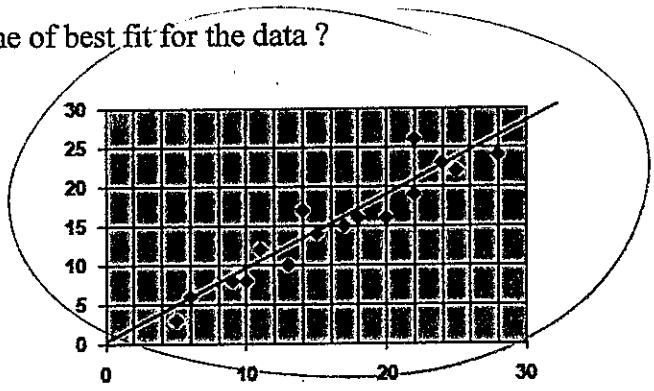
12) Evaluate: $x^6 \cdot x^1 \cdot x^{-3}$

- 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.

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

* put in calc (2nd)(DRO) → SCI (enter) 8.5×10^{-5}

15) Mike's weekly earning 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?

y x

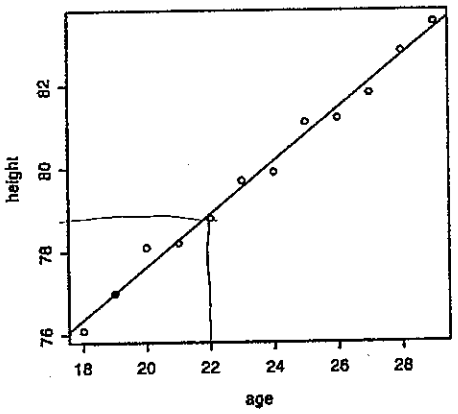
30 hours

$y = 10x + 30$
$330 = 10x + 30$
$-30 \quad -30$
$\frac{300}{10} = \frac{10x}{10}$
$x = 30$

* plug the $ in for y.

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

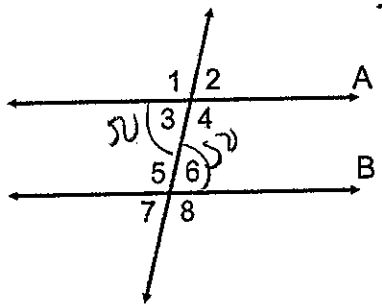
Look x



≈ 79

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

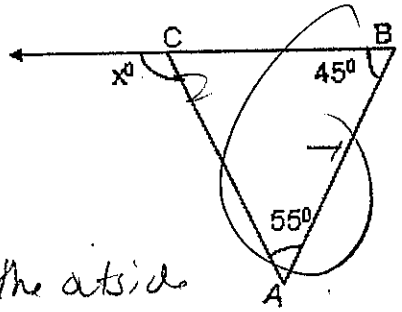
$m\angle 6 = 58°$



They are both acute so they are congruent

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

$x = 45 + 55$
$x = 100°$

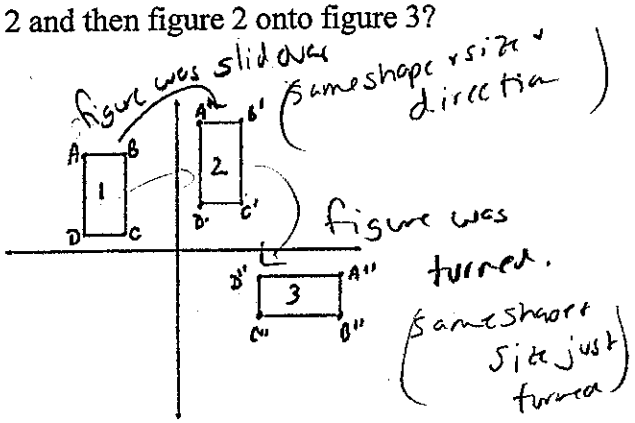


* Add the 2 inside angles to get the outside

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

Additive inverse

$4x + 3y = -1$
$+ 5x - 3y = 19$

$9x = 18$

$\frac{9x}{9} = \frac{18}{9}$

$x = 2$

$4x + 3y = -1$
$4(2) + 3y = -1$
$8 + 3y = -1$
$-8 \quad -8$

$3y = -9$

$\frac{3y}{3} = \frac{-9}{3}$

$y = -3$

(2, -3)

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

Guess + check!

a) (3, 10)

x y

$y = -5x - 5$
$10 = -5(3) - 5$
$10 = -15 - 5$
$10 \neq -20$

b) (2, -7)

x y

$y = -5x - 5$
$-7 = -5(2) - 5$
$-7 = -10 - 5$
$-7 = -15$

c) (6, -35)

x y

$y = -5x - 5$
$-35 = -5(6) - 5$
$-35 = -30 - 5$
$-35 = -35$ ✓

22) Solve for x:

DCMS

$5.5x + 0.7 = 3.5x + 8.7$
$-3.5x \quad -3.5x$

$2x + 0.7 = 8.7$
$-0.7 \quad -0.7$

$2x = 8$

$\frac{2x}{2} = \frac{8}{2}$

$x = 4$

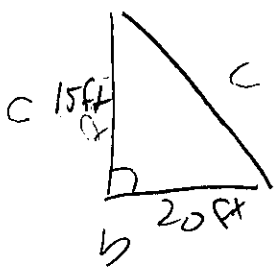
Distribute (multiply)

Combine like terms on the same side / same operation

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

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?



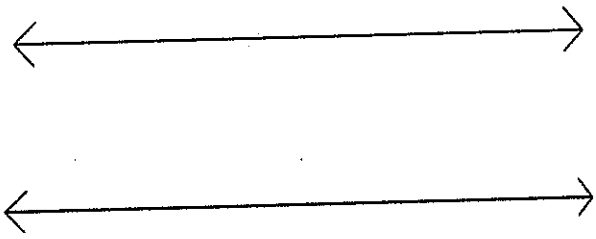
$a^2 + b^2 = c^2$
$15^2 + 20^2 = c^2$
$225 + 400 = c^2$

$\sqrt{625} = \sqrt{c^2}$ → 2nd x^2

$c = 25$ ft

must be c!

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 mph

26) What is the solution to the equation below?

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

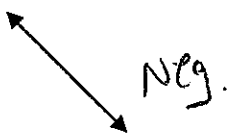
D
C
M
S

$6x - 18 = 30$
$+18 \quad +18$
$\frac{6x}{6} = \frac{48}{6}$
$x = 8$

A b/c

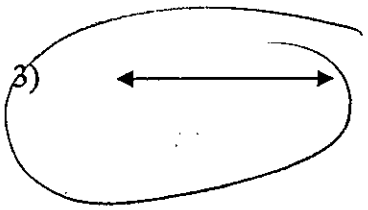
27) Which of the following lines has a slope of zero? → horizontal line

1)



Neg.

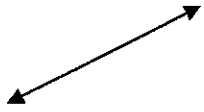
3)



2)

Undefined

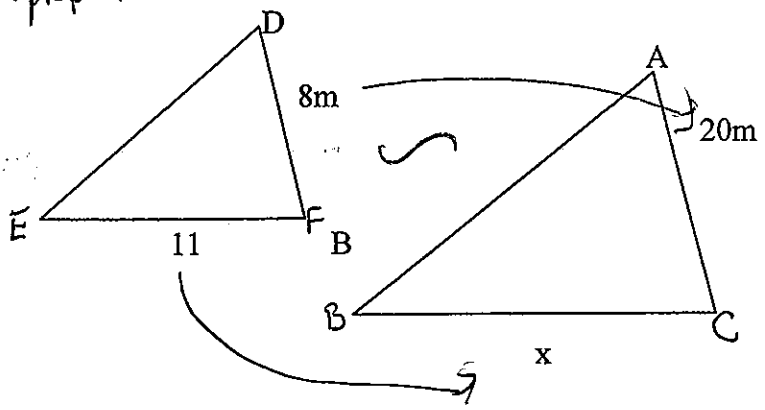
4)



pos

28) Find the value of x, to the nearest tenth, if ΔDEF is similar to. ΔABC

Set up a proportion & solve!



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

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

$x = 27.5$

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.

55 × 5 = 275 ; 20 × 8 = 160 ; 275 + 160 = 435 ✗

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

55 × 10 = 550 ; 20 × 3 = 60 ; 550 + 60 = 610 ✓

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 $a^3 = 729$

3 | 2nd | 1 | 729 | =

$a = 9$