

1.) $x^2 - 10x + 21 = 0$

$(x-3)(x-7) = 0$
 $x = 3, 7$

2.) $x^2 + 8x - 33 = 0$

$(x+11)(x-3) = 0$
 $x = -11, 3$

4.) $x^2 - 11x - 12 = 0$

$(x+1)(x-12) = 0$
 $x = -1, 12$

3.) $x^2 + 5x + 30 = 2 - 6x$
 $+6x \quad -2 \quad -2 \quad +6x$

$x^2 + 11x + 28 = 0$

$(x+4)(x+7) = 0$
 $x = -4, -7$

6.) $x^2 - 10x + 48 = 6x \Rightarrow x^2 - 16x + 48 = 0$

$(x-4)(x-12) = 0$
 $x = 4, 12$

5.) $x^2 - 5x + 15 = 6 + 3x$
 $-3x \quad -6 \quad -6 \quad -3x$

$x^2 - 8x + 9 = 0$

$(x+1)(x-9) = 0$
 $x = -1, 9$

7.) $5x^2 - 9x - 2 = 0$

$-10x$	-2
$5x^2$	$1x$

-2
 x

$(x-2)(5x+1) = 0$
 $x = 2, -\frac{1}{5}$

8.) $6x^2 + 37x + 6 = 0$

$36x^2$	6
$6x^2$	$1x$

$6x$
 x

$(x+6)(6x+1) = 0$
 $x = -6, -\frac{1}{6}$

9.) $4x^2 - 15x - 25 = 0$

$(4x+5)(x-5) = 0$
 $x = -\frac{5}{4}, 5$

10.) $5x^2 - 18x + 9 = 0$

$(x-3)(5x+3) = 0$
 $x = 3, -\frac{3}{5}$

11. $\frac{2x}{x+4} = \frac{-3x}{4x-3}$

$-3x(x+4) = 2x(4x-3)$
 $-3x^2 - 12x = 8x^2 - 6x$
 $+3x^2 + 12x = 8x^2 - 6x + 12$
 $0 = 11x^2 - 6x + 12$

12. $\frac{2}{x+2} = \frac{12}{x^2-1}$

$12(x+2) = 2(x^2-1)$
 $12x+24 = 2x^2-2$
 $0 = 2x^2 - 12x - 26$
 $0 = x^2 - 6x - 13$

13.) $\frac{x+12}{3} = \frac{2x+3}{x+2}$

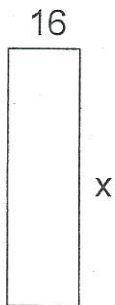
$6x+9 = x^2+14x+24$
 $0 = x^2+8x+15$
 $(x+5)(x+3) = 0$
 $x = -5, -3$

14.) $\frac{x-1}{x+6} = \frac{x-1}{2x-1}$

$x^2 + 5x - 6 = 2x^2 - 3x + 1$
 $0 = x^2 - 8x + 7$
 $(x-1)(x-7) = 0$
 $x = 1, 7$

Use proportions to solve for the missing sides: (assume the polygons are similar)

20)

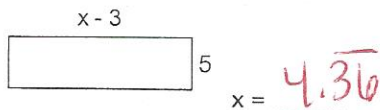


$$\frac{x}{x-3} = \frac{16}{5}$$

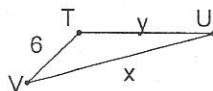
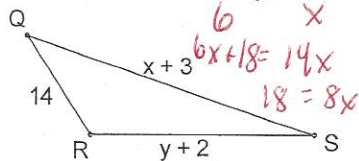
$$16x - 48 = 5x$$

$$-48 = -11x$$

$$x = 4.36$$



21) $QRS \sim VTU$



$$\frac{14}{6} = \frac{x+3}{x}$$

$$6x + 18 = 14x$$

$$18 = 8x$$

$$\frac{14}{6} = \frac{y+2}{y}$$

$$14y + 12 = 14y$$

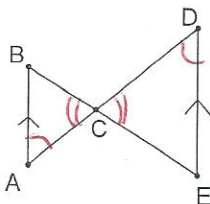
$$12 = 8y$$

$$y = 1.5$$

$$x = 2.25, y = 1.5$$

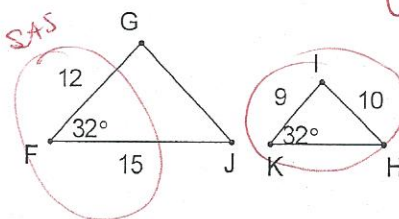
State whether each pair of triangles is similar. If yes, write a similarity statement and state which postulate you used to determine similarity, AA, SAS, or SSS postulate. If there is not enough information to be able to tell, then write "NONE" in the blanks.

22) similarity statement $\triangle ABC \sim \triangle DEC$



AA~ postulate

23) similarity statement _____

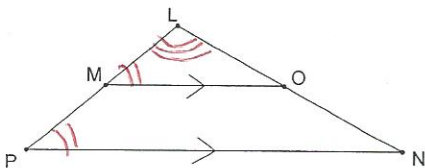


can't tell if similar

NOT SAS

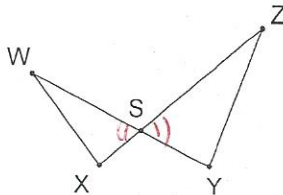
_____ postulate

24) similarity statement $\triangle LMO \sim \triangle LPN$



AA~ postulate

25) similarity statement _____



can't tell if similar not enough info.

_____ postulate

Solve each using proportions. Write the proportions you use in the blanks provided!

26) If the Falcons can make 12 baskets in 9 minutes of the game, how many baskets will they make in 30 minutes at the same rate?

Proportion $\frac{12}{9} = \frac{x}{30}$ answer $x = 40$ baskets

$$9x = 360$$

27) Bill D. Towne is an architect. Two inches on his drawing represents 10 feet in an actual room. If the room he is designing is going to be 24 feet long and 18 feet wide, what are the dimensions of the drawing of this room in inches?

$$\frac{2}{10} = \frac{x}{18}$$

$$y = 3.6$$

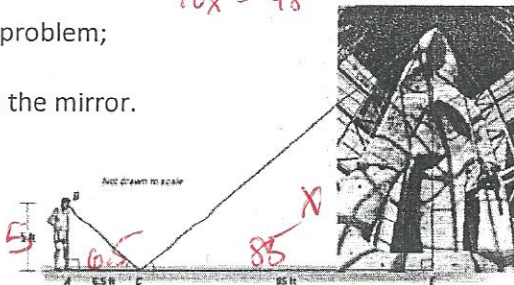
Proportion $\frac{2}{10} = \frac{x}{24}$ answer 4.8 inches long and 3.6 inches wide

$$10x = 48$$

28) Use the mirror method to solve the problem;

Joe is 5 feet tall and stands 6.5 feet from the mirror. The rock wall is 85 feet from the mirror.

How tall is the rock wall?



$$\frac{x}{5} = \frac{85}{6.5}$$

$$425 = 6.5x$$

$$x = 65.38$$