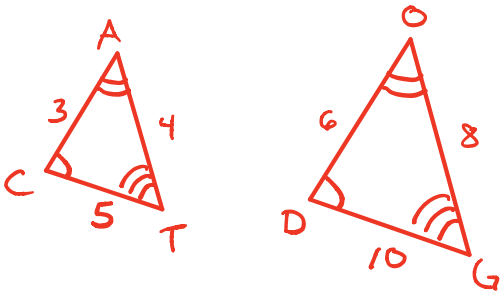
Similarities – Similar Polygons

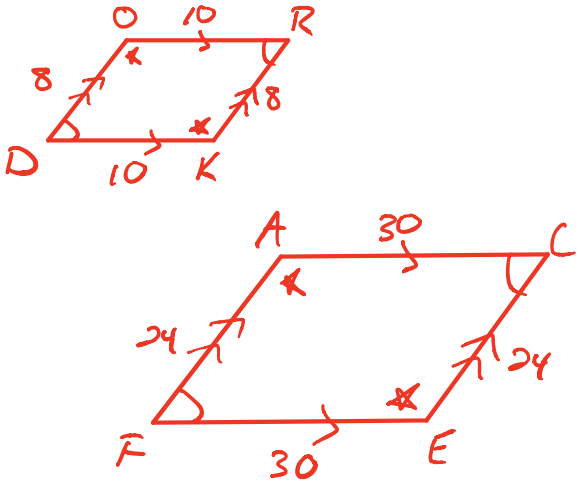
Homework Section 7.2 Name_____

Draw the following. Mark the congruent angles.

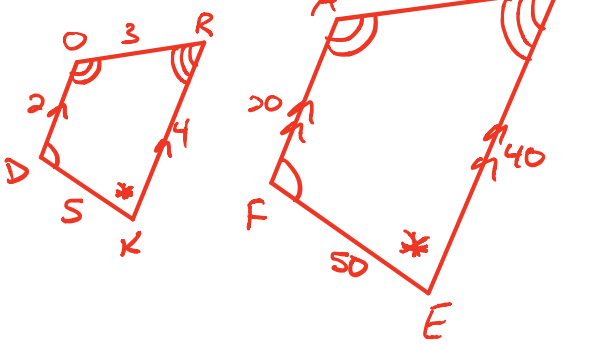
#1) $\Delta CAT \sim \Delta DOG$



#2) Parallelograms $DORK \sim FACE$

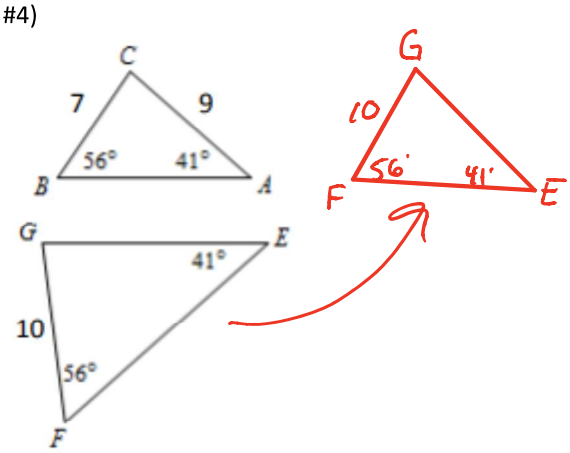


#3) Trapezoids $BACK \sim HAIR$



The following triangles are similar. Fill in the blank using the proper order. Find the scale factor.

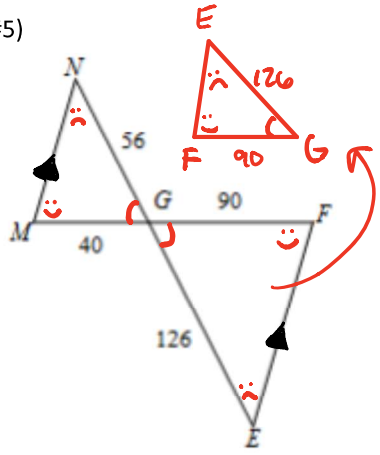
#4)



$\Delta EFG \sim$ ΔABC

Scale Factor = $\frac{10}{7}$

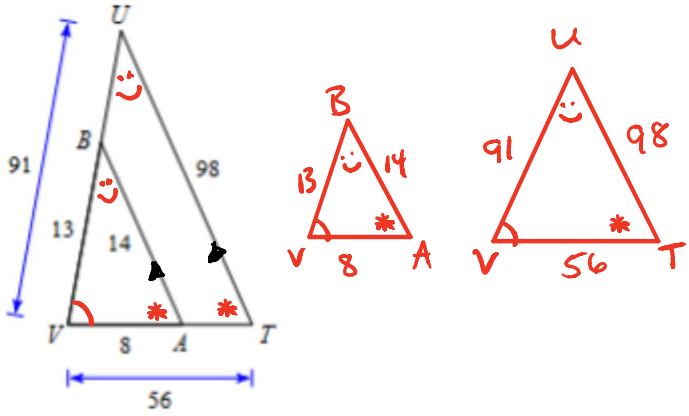
#5)



$\Delta GFE \sim$ ΔGMN

Scale Factor = $\frac{40}{90} = \frac{4}{9}$

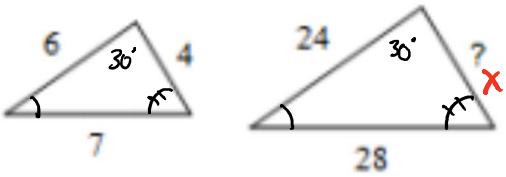
#6)



$\Delta VUT \sim \Delta VBA$

Scale Factor = $\frac{56}{8} = \frac{7}{1}$

#8)



$\frac{7}{28} = \frac{4}{x}$

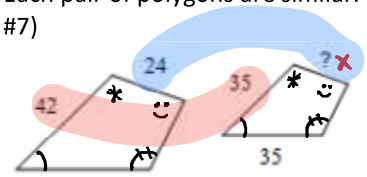
$(4x)\frac{1}{4} = \frac{4}{x}(4x)$

$x = 4 \cdot 4$

$x = 16$

Each pair of polygons are similar. Find the missing length.

#7)



$\frac{42}{35} = \frac{24}{x}$

$\frac{6}{5}x = \frac{24}{x}5x$

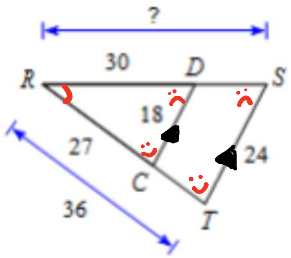
$6x = 24 \cdot 5$

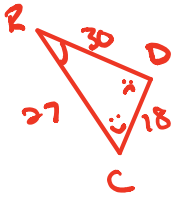
$\frac{6x}{6} = \frac{24 \cdot 5}{6}$

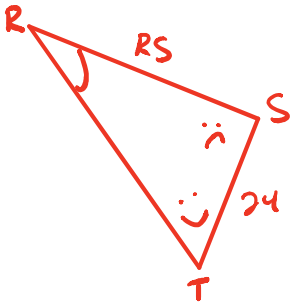
$x = 4 \cdot 5$

$x = 20$

#9)







$\frac{18}{24} = \frac{30}{RS}$

$(4RS)\frac{3}{4} = \frac{30}{RS}(4RS)$

$\frac{3RS}{3} = \frac{30 \cdot 4}{3}$

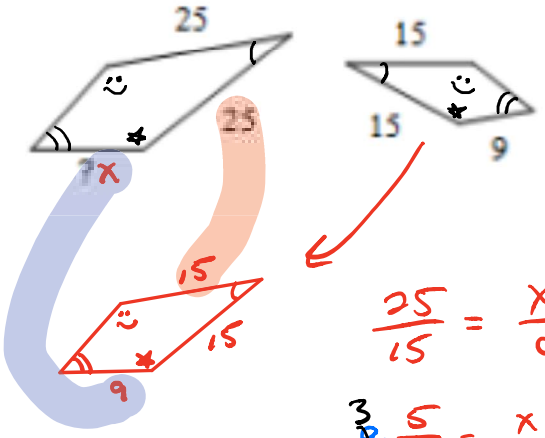
$RS = 10 \cdot 4$

$RS = 40$

Similarities – Similar Polygons

Homework Section 7.2 Name_____

#10)



$$\frac{25}{15} = \frac{x}{9}$$

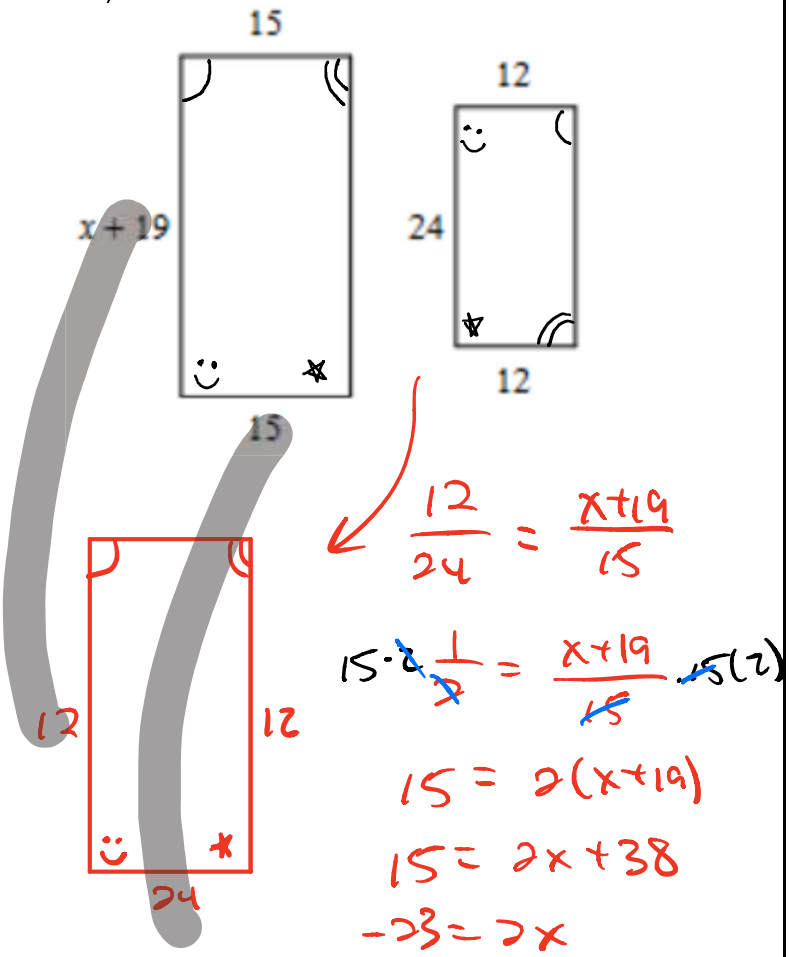
$$3 \cdot \frac{5}{3} = \frac{x}{9} \cdot 9$$

$$3 \cdot 5 = x$$

$$15 = x$$

The following polygons are similar. Find the value of x.

#11)



$$\frac{12}{24} = \frac{x+19}{15}$$

$$15 \cdot \frac{1}{2} = \frac{x+19}{15} \cdot 15(2)$$

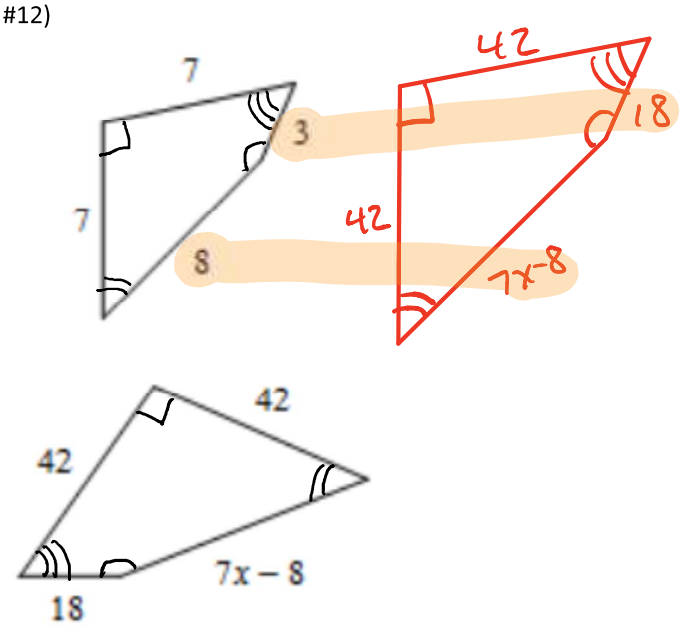
$$15 = 2(x+19)$$

$$15 = 2x + 38$$

$$-23 = 2x$$

$$-\frac{23}{2} = x$$

#12)



$$\frac{3}{18} = \frac{8}{7x-8}$$

$$6(7x-8) \cdot \frac{1}{6} = \frac{8}{7x-8} \cdot 6(7x-8)$$

$$7x - 8 = 8 \cdot 6$$

$$7x - 8 = 48$$

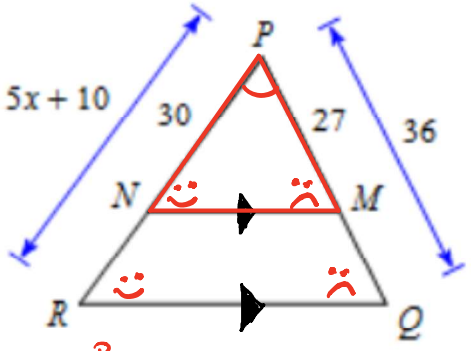
$$7x = 56$$

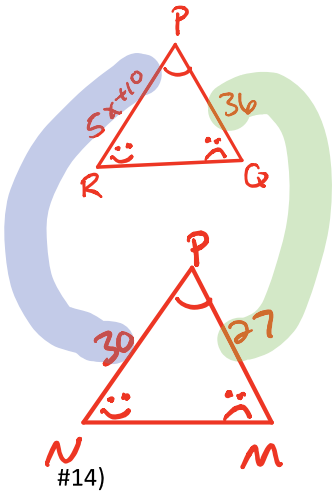
$$x = 8$$

Similarities – Similar Polygons

Homework Section 7.2 Name _____

#13)





$\frac{5x+10}{30} = \frac{36}{27}$

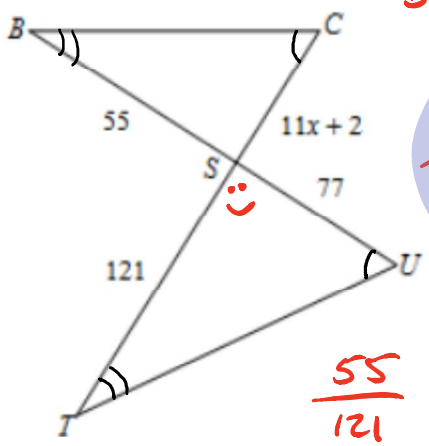
$30 \cdot \frac{5x+10}{30} = \frac{4}{3} \cdot 30^{10}$

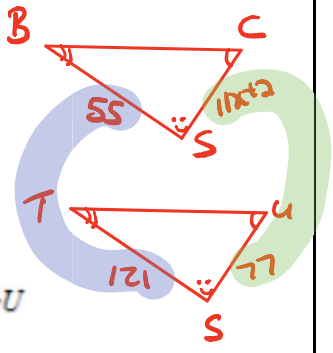
$5x+10 = 40$

$5x = 30$

$x = 6$

#14)





$\frac{55}{121} = \frac{11x+2}{77}$

$77 \cdot \frac{5}{11} = \frac{11x+2}{77} \cdot 77$

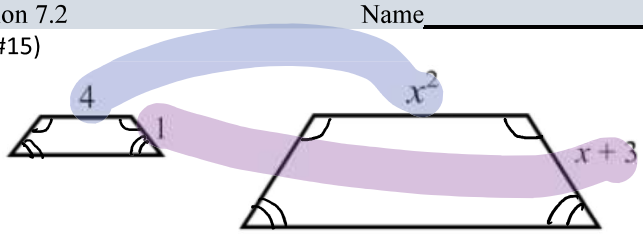
$7 \cdot 5 = 11x + 2$

$35 = 11x + 2$

$33 = 11x$

$3 = x$

#15)



$4 \cdot \frac{x^2}{4} = \frac{x+3}{1} \cdot 4$

$x^2 = 4(x+3)$

$x^2 = 4x + 12$

$x^2 - 4x - 12 = 0$

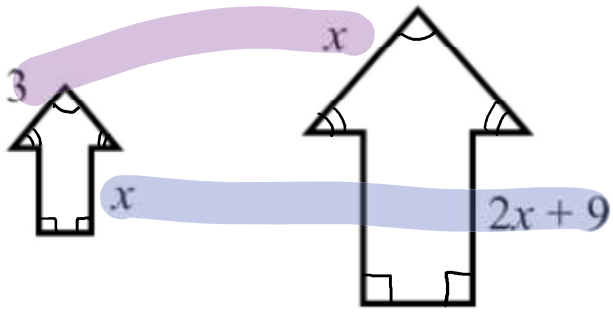
$(x-6)(x+2) = 0$

$x - 6 = 0$ | $x + 2 = 0$

$x = 6$ | $x = -2$

$\therefore x = -2, 6$

#16)



$(2x+9) \cdot \frac{3}{x} = \frac{x}{2x+9} (2x+9)\, x$

$3(2x+9) = x \cdot x$

$6x + 27 = x^2$

$0 = x^2 - 6x - 27$

$0 = (x-9)(x+3)$

$0 = x - 9$ | $0 = x + 3$

$9 = x$ | $-3 = x$

$\therefore x = -3, 9$