

Group Number: Key Date: _____ Block: _____

SHORT ANSWER (points) ¹⁹

1) The lengths of two sides of rectangle are in the ratio 2 : 3. If the perimeter is 60 in², what are the length and width? ⁽²⁾

width $2x$ length $3x$



$$P = 2L + 2W$$

$$60 = 2(3x) + 2(2x)$$

$$\frac{60}{10} = \frac{10x}{10}$$

$$x = 6$$

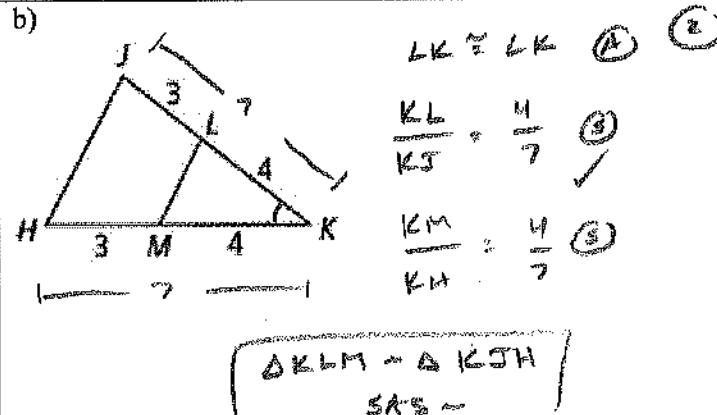
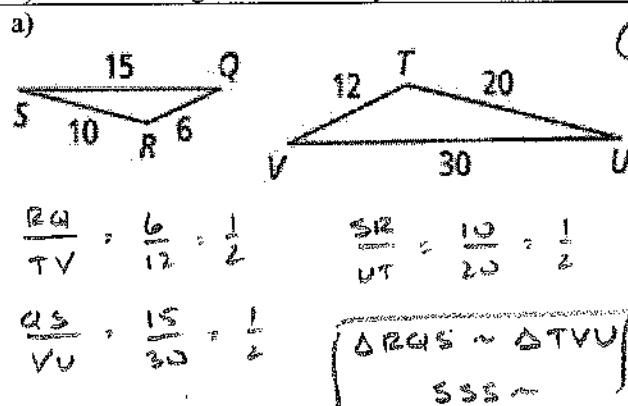
width $2x = 12$ length $3x = 18$

$width + length = 2(6) = 12$
 $length + width = 3(6) = 18$

2) $\triangle HJK \sim \triangle RST$. Complete each statement. ⁽¹⁾

$\angle K \cong \angle T$ $\frac{JK}{ST} = \frac{HK}{RT}$

3) Are the triangles similar? If yes, write a similarity statement and explain how you know they are similar. If not, explain.

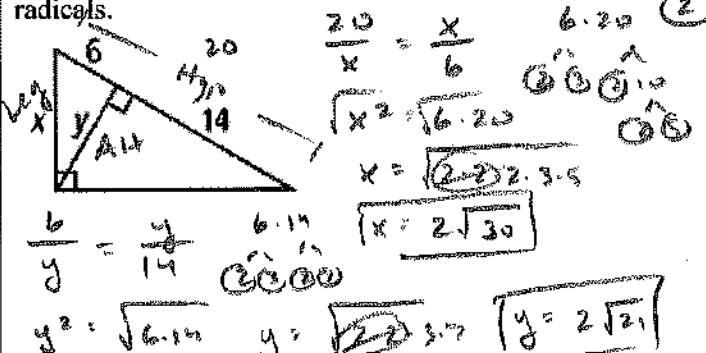


4) Find the geometric mean of each pair of numbers. Leave answers as simplified radicals. ⁽²⁾

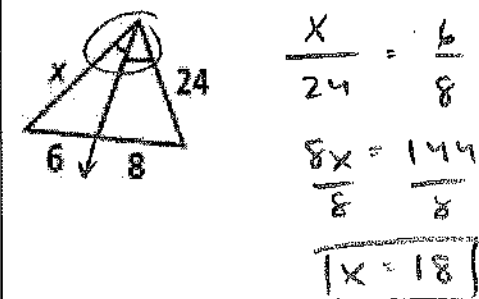
a) 9 and 12 $x = \sqrt{9 \cdot 12} = \sqrt{108} = 6\sqrt{3}$

b) 5 and 45 $x = \sqrt{5 \cdot 45} = \sqrt{225} = 15$

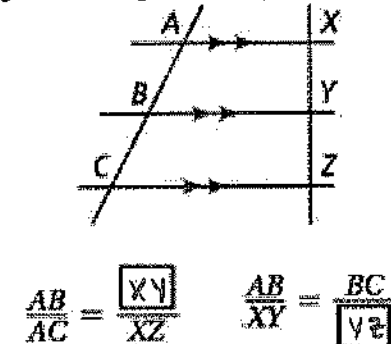
5) Find the values of x and y . Leave answers as simplified radicals. ⁽²⁾



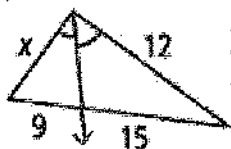
6) What is the value of x ? ⁽¹⁾



7) Use the figure to complete each proportion. ⁽¹⁾



8) A classmate write an incorrect proportion to find x. Correct the error and find x.



$$\frac{x}{15} = \frac{9}{12}$$

$$\frac{x}{12} = \frac{9}{15}$$

$$\frac{15x}{15} = \frac{108}{15}$$

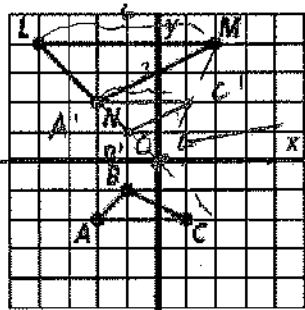
$$x = 7.2$$

①

9) Fill-in the transformation that maps one figure to the other.

$$(D_{(2,0)} \circ R_{x\text{-axis}})(\triangle ABC) = \triangle LNM$$

②



$$SF = \frac{LM}{A'C'} = \frac{6}{3} = 2$$

10) Find the coordinates of the dilation.

②

$$a) P(2, 5)$$

$$D_{(3,0)}(P)$$

$$P'(3, 3, 3, 11)$$

$$P'(9, 33)$$

$$b) P(10, -20)$$

$$D_{(4,0)}(P)$$

$$P'(4, 2, 4, -4)$$

$$P'(8, -16)$$

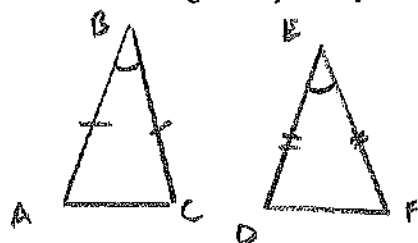
11) A student uses image and preimage lengths of an enlargement to find a scale factor of $\frac{3}{4}$. Explain how you know she has made an error.

①

For an enlargement, the SF must be greater than 1.

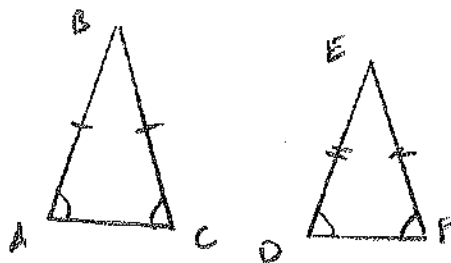
EXTENDED RESPONSE (4 points)

a) Can you prove that any two isosceles triangles are similar if you only know that the vertex angles are congruent? Explain. Use a drawing to help with your written explanation.



Yes by SAS. The vertex $\angle$'s are the pair of $\cong \angle$'s. The sides that include these $\angle$'s are the $\cong$ sides in each isos. Δ . Therefore, the ratios of corr. sides will be equal $\left(\frac{AB}{DE} = \frac{BC}{EF}\right)$

b) Can you prove that any two isosceles triangles are similar if you only know that a pair of corresponding base angles is congruent? Explain. Use a drawing to help with your written explanation.



Yes by AA. The Isos. Δ Theorem states that the base $\angle$ pairs in an isos. Δ are $\cong$. Therefore, all 4 base $\angle$'s are $\cong$, thus giving 2 pairs of $\cong$ corr. $\angle$'s.