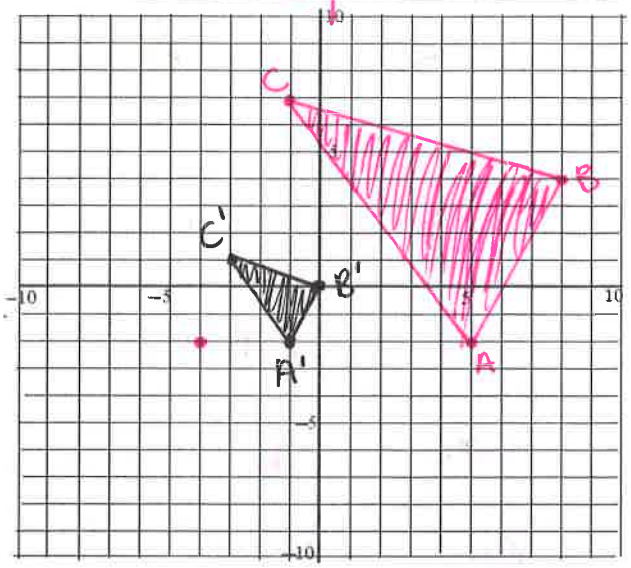
Unit 4 Study Guide – Honors

Name: Key

1. Plot Triangle ABC with endpoints A(5, -2), B(8, 4) and C(-1, 7).

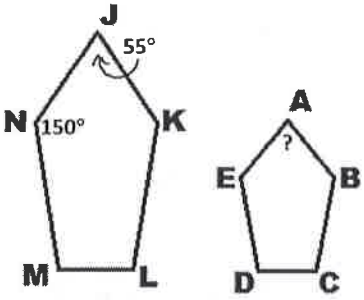


a. Graph triangle A'B'C' after a dilation of scale factor 1/3 centered at point (-4, -2).

b. Explain how you know $\overline{AB} \parallel \overline{A'B'}$.

Corresponding sides of a dilated figure are parallel.

2. Pentagon JKLMN is similar to pentagon ABCDE. What is the measurement of angle A?



$\angle A = 55°$

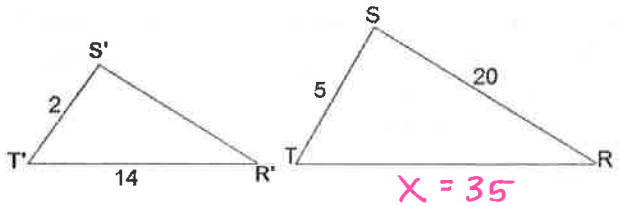
3. Ryan and Kathy each drew a triangle with an angle of 20 degrees. Under which condition would the triangles be similar?

[a] If both are right triangles
[b] If both are obtuse triangles
[c] If corresponding sides are proportional

4. ΔSTR is similar to $\Delta S'T'R'$.
What is the perimeter of ΔSTR?

$\frac{2}{5} = \frac{14}{x}$ $x = 35$

Perimeter: $20 + 5 + 35 = 60$ units

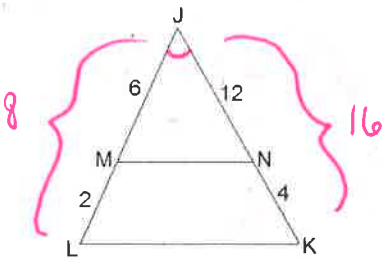


$x = 35$

What is the scale factor?

$SF = \frac{\text{image}}{\text{pre-image}} = \frac{2}{5} = 0.4$

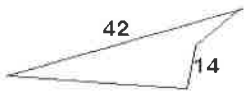
5. **Given:** JM = 6; ML = 2; JN = 12; NK = 4
Prove: $\Delta JMN \sim \Delta JLK$

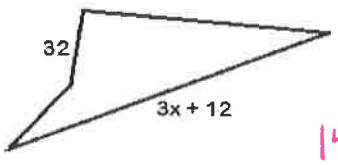


8 16

Statements	Reasons
1. JM = 6; ML = 2; JN = 12; NK = 4	1. Given
2. $\frac{JM}{JL} = \frac{JN}{JK} = \frac{3}{4}$ ✓	2. Corresponding Sides are proportional
3. $\angle J \cong \angle J$	3. Reflexive Prop.
4. $\Delta JMN \sim \Delta JLK$	4. SAS ~ Thm.

6. What is the value of x?





$\frac{14}{32} = \frac{42}{3x+12}$

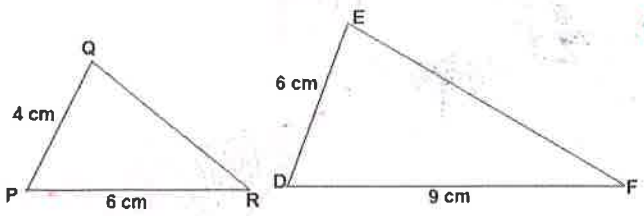
$14(3x+12) = 1344$

$42x + 168 = 1344$

$42x = 1176$

$x = 28$

7. Which describes the relationship between the corresponding sides of the two triangles?

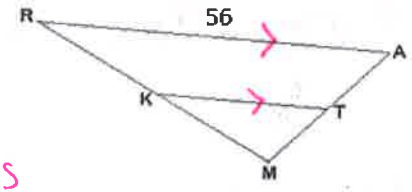


a. $\frac{PQ}{DE} = \frac{4}{6}$ b. $\frac{PQ}{DE} = \frac{6}{4}$

c. $\frac{PQ}{EF} = \frac{4}{9}$ d. $\frac{PR}{DE} = \frac{6}{6}$

8. If $\overline{KT}$ is a midsegment, what is the length of $\overline{KT}$?

KT = 28



What do we know about point K and point T?

they are both midpoints

9. When a figure is dilated, what is the result? **CIRCLE ALL THAT APPLY.**

[a] figures with corresponding sides being parallel

[b] figures that are congruent

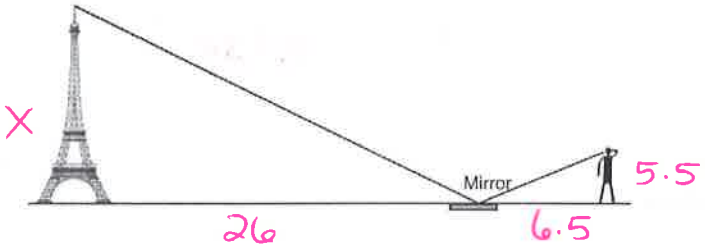
[c] figures with corresponding sides being proportional and corresponding angles that are congruent

[d] figures that are similar

10. The angle of the roof of Becca's dollhouse is 56°. She built a model of the dollhouse with a scale ratio of 1:4. What is the measure of the angle of the roof of the model?

[a] 14° [b] 34° [c] 56° [d] 224°

11. Alex visited Las Vegas where he found a scale model of the Eiffel Tower. As he missed a week of classes to go on this vacation he felt guilty and decided to practice what he'd been learning in geometry class. He wanted to "brush up" on his skills for indirect measurement. He placed a mirror 6.5 feet away from him and in between him and the tower. The remaining distance, then, from the mirror to the tower was 26 feet. Alex recently went to the doctor for his yearly physical where he learned he had grown and now stands 5.5 feet tall. If Alex is a good geometry student, how tall did he discover the Eiffel Tower model to be?



$\frac{x}{5.5} = \frac{26}{6.5}$

$6.5x = 143$

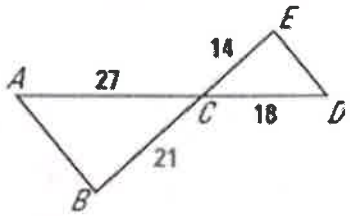
X = 22 feet tall

12. A warehouse casts a shadow 288 feet long. At the same time, Julie is 5 feet tall and casts a shadow that's 12 feet long. How tall is the warehouse?

$\frac{x}{5} = \frac{288}{12}$ X = 120 ft

$12x = 1440$

13. Are the triangles similar? Show **ALL** your work. Write the similarity statement.



yes, by SAS ~ Thm

$\angle ACB \cong \angle ECD$

$\frac{27}{18} = 1.5$ ✓

$\frac{21}{14} = 1.5$ ✓

$\triangle ACB \sim \triangle DCE$

14. $\overline{CD} \parallel$ $\overline{PN}$