

GEOMETRY

Exam 6

Based on Chapter 6 (pages 354 - 427) in your textbook.

Student's Name _____ Student Number _____

Street _____ City _____ State _____ Zip
Code _____

BE SURE YOU FULLY UNDERSTAND ALL CHECKPOINT PROBLEMS FROM THIS CHAPTER
BEFORE YOU COMPLETE THIS EXAM. **SHOW AS MUCH WORK AS POSSIBLE.**

1. Simplify the ratio 20 in. : 5 ft.

2. The perimeter of a television screen is 112 inches. The ratio of the length to the width is 9 to 5. Find the length and width.

length = _____

width = _____

3. The measures of the angles in $\triangle ABC$ are in the extended ratio 4 : 5 : 6. Find the measure of the angles of the triangle.

4. Solve for x and y : $\frac{3}{x} = \frac{2}{5}$ $\frac{y}{4} = \frac{y-1}{3}$

$x =$ _____

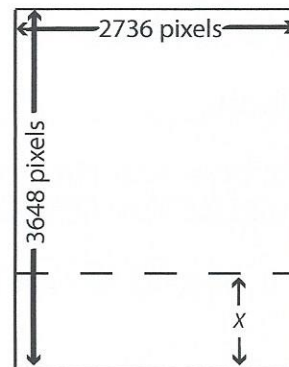
$y =$ _____

5. Sandy wants to email a picture file to a printing service. The picture has a 2736 pixel length and 3648 pixel width (common 3 : 4 ratio). If the image is to be cropped on the bottom to produce a 4 : 5 ratio for 8" x 10" printing, how much pixel width (x) should be removed?

Original: $\frac{2736}{3648} = \frac{3}{4}$

Cropped: $\frac{2736}{3648 - x} = \frac{4}{5}$

$x =$ _____



6. Find the geometric mean of 36 and 16.

7. If $\frac{a}{b} = \frac{c}{d}$, circle the following item which is NOT true.

$ad = bc$

$\frac{a}{c} = \frac{b}{d}$

$\frac{a+b}{b} = \frac{c+d}{d}$

$\frac{a}{d} = \frac{c}{b}$

$\frac{b}{a} = \frac{d}{c}$

8. Circle the following statement which is NOT true.

If $\frac{x+2}{x} = \frac{5+y}{5}$, then $\frac{2}{x} = \frac{y}{5}$

If $\frac{x+3}{4} = \frac{y}{5}$, then $\frac{x+3}{y} = \frac{4}{5}$

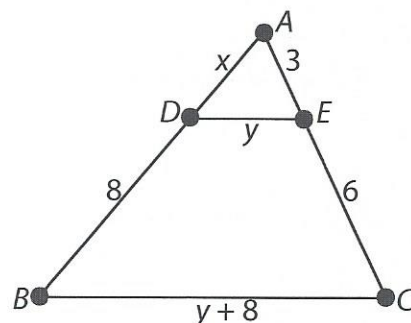
If $\frac{x}{3} = \frac{y}{4}$, then $\frac{x}{y} = \frac{4}{3}$

If $\frac{x-4}{4} = \frac{3-y}{y}$, then $\frac{x}{4} = \frac{3}{y}$

9. In the diagram, $\frac{AB}{AD} = \frac{AC}{AE} = \frac{BC}{DE}$. Solve for x and y .

$x =$ _____

$y =$ _____



(more)

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10. In the diagram, $ABCDE \sim FGHIJ$.

(A) Which angle in $ABCDE$ is congruent to $\angle I$?

(B) Find the scale factor of $ABCDE$ to $FGHIJ$.

(C) Find the value of x .

$x =$ _____

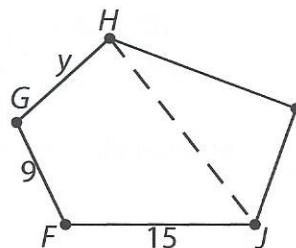
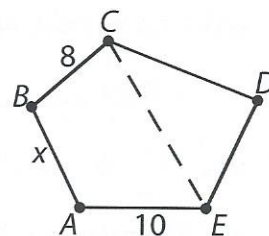
(D) Find the value of y .

$y =$ _____

(E) If the perimeter of $ABCDE$ is 38, find the perimeter of $FGHIJ$.

(F) If length HJ is 15, find length CE .

$CE =$ _____



(over)

11. In the diagram, $\triangle ABD \sim \triangle BCD$

(A) List all pairs of congruent angles.

$$\angle DAB \cong \angle \underline{\hspace{2cm}}, \angle ABD \cong \angle \underline{\hspace{2cm}}, \angle BDA \cong \angle \underline{\hspace{2cm}}$$

(B) T F $m\angle ADB = 180 - m\angle A - m\angle C$

(C) Complete the following statements of proportionality of corresponding sides.

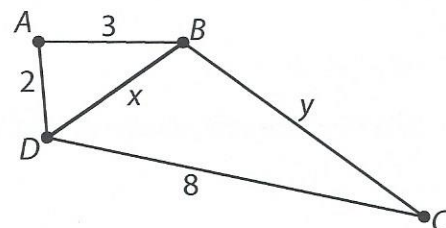
$$\frac{AB}{BC} = \frac{BD}{\underline{\hspace{1cm}}} = \frac{\underline{\hspace{1cm}}}{BD} \quad \frac{3}{y} = \frac{x}{\underline{\hspace{1cm}}} = \frac{\underline{\hspace{1cm}}}{x}$$

(D) Find the value of x .

$$x = \underline{\hspace{2cm}}$$

(E) Find the value of y .

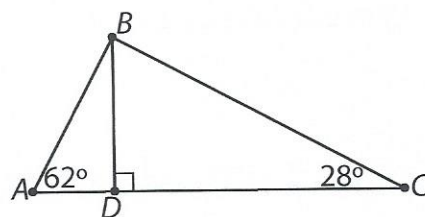
$$y = \underline{\hspace{2cm}}$$



12. In the figure, which of the following is true?

(A) $\triangle ABD \sim \triangle BCD$ (B) $\triangle ABD \sim \triangle ACB$

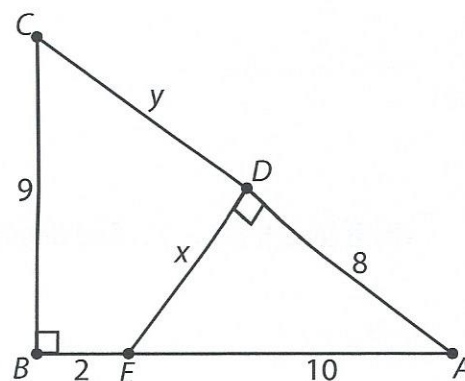
(C) $\triangle BCD \sim \triangle ACB$ (D) All of these.



13. Complete the following:

$\triangle ABC \sim \triangle \underline{\hspace{1cm}}$ by $\underline{\hspace{2cm}}$

$x = \underline{\hspace{2cm}}$ and $y = \underline{\hspace{2cm}}$

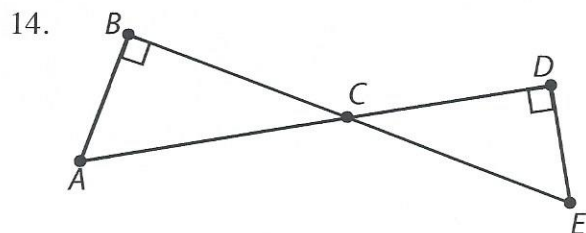


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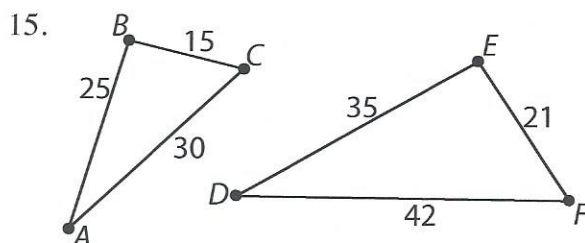
Items 14-19: Determine whether the triangles are similar (circle yes or no). If similar, write a similarity statement and the theorem or postulate that justifies your answer.



yes $\triangle$ _____ $\sim$ $\triangle$ _____

by _____

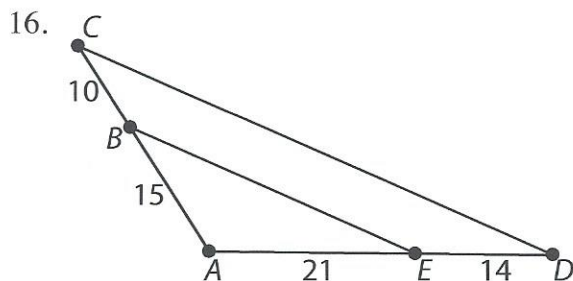
no



yes $\triangle$ _____ $\sim$ $\triangle$ _____

by _____

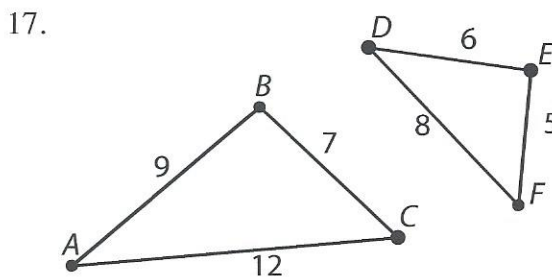
no



yes $\triangle$ _____ $\sim$ $\triangle$ _____

by _____

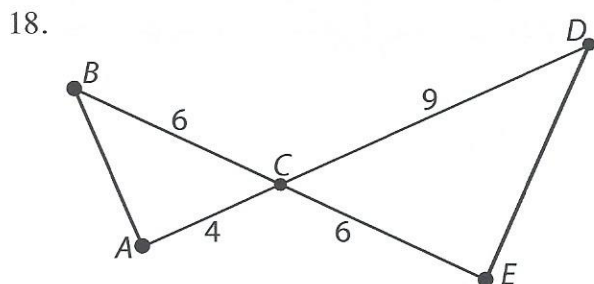
no



yes $\triangle$ _____ $\sim$ $\triangle$ _____

by _____

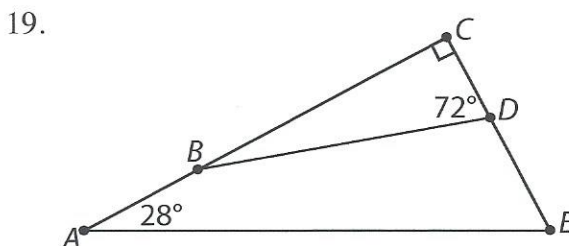
no



yes $\triangle$ _____ $\sim$ $\triangle$ _____

by _____

no



yes $\triangle$ _____ $\sim$ $\triangle$ _____

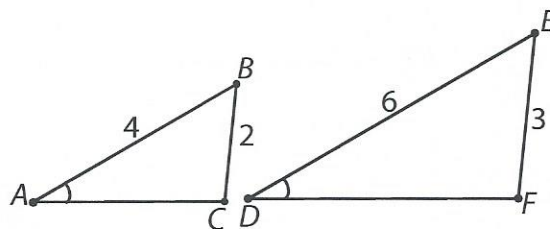
by _____

no

(over)

20. Dru is challenged by her geometry teacher to estimate the height of the school flagpole without measuring. She repeatedly walks the length of her shadow until she reaches the end of the pole's shadow. If Dru is 5 ft 6 in. tall and she finds the flagpole shadow is 8 times as long as her own shadow, then what is the approximate height of the flagpole?

21. Explain why the SAS Similarity Theorem cannot be used to show $\triangle ABC \sim \triangle DEF$.

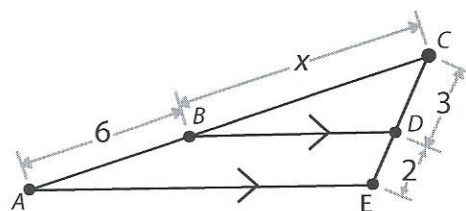


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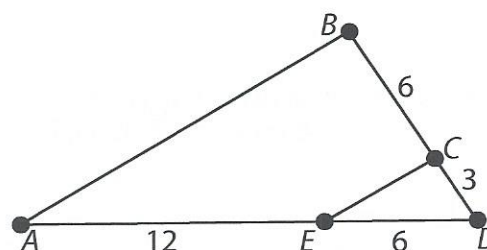
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22. Solve for length x . _____

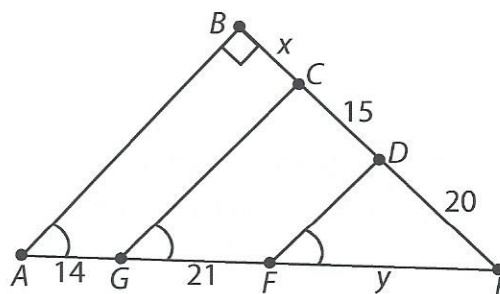


23. Is $\overline{AB} \parallel \overline{EC}$? If so, explain your reasoning.

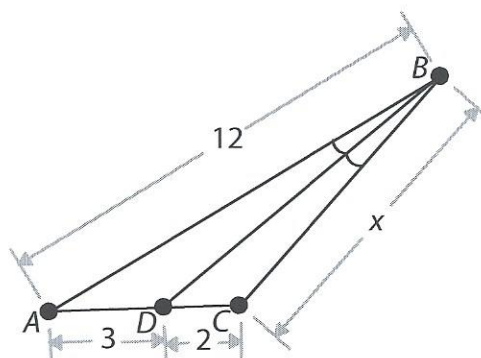


24. Find lengths x and y .

$x = \underline{\hspace{2cm}}$ $y = \underline{\hspace{2cm}}$



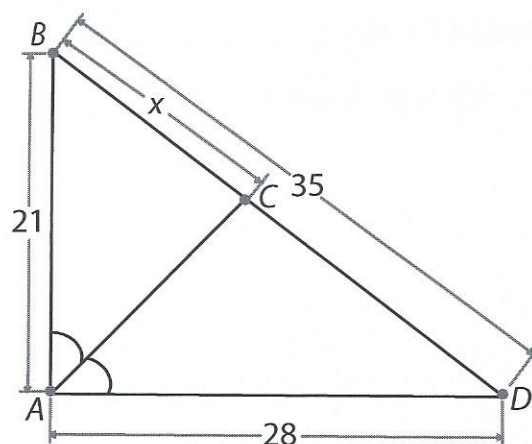
25. Solve for length x .



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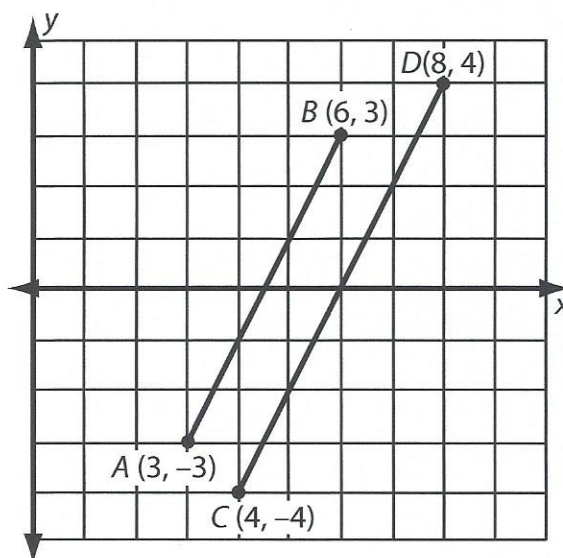
26. If $BD = 35$, find length x .

$x =$ _____



27. (A) What is the scale factor for the dilation of $\overline{AB}$ into $\overline{CD}$?

- (B) Draw the dilation of $\overline{AB}$ with scale factor $\frac{2}{3}$ and label it $\overline{EF}$.



FILL IN YOUR NAME AND THE OTHER REQUIRED INFORMATION ON EACH PAGE OF THE EXAM AND MAIL THE EXAM TO AMERICAN SCHOOL.