

7-2 Similar Polygons

Two figures are similar if they have the same shape, but not necessarily the same size. *** Dilations create similar shapes.**

They are similar (✓) if **similar shapes.**

★ 1.) corresponding ∠'s are ≅

★ 2.) corresponding sides are proportional
- the ratio of lengths of corresponding sides is the similarity ratio

LMNO ~ HIJK. Complete the proportions and congruence statements.

7. $\angle M \cong ?$

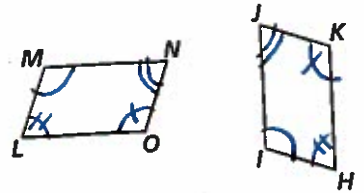
$\angle I$

8. $\angle K \cong ?$

$\angle O$

9. $\angle N \cong ?$

$\angle J$



10. $\frac{MN}{IJ} = \frac{NO}{JK}$

11. $\frac{HK}{LO} = \frac{HI}{LM}$

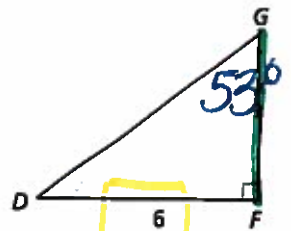
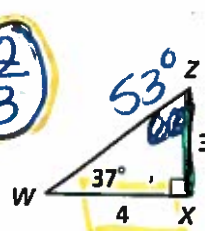
12. $\frac{IJ}{MN} = \frac{HK}{LO}$

$\triangle WXZ \sim \triangle DFG$. Use the diagram to find the following.

17. the similarity ratio of $\triangle WXZ$ and $\triangle DFG$

$\frac{WX}{DF} = \frac{XZ}{FG} = \frac{WZ}{DG}$

$\frac{4}{6} = \frac{2}{3}$



18. $m\angle Z$

53°

19. DG

$\frac{2}{3} = \frac{5}{DG}$
 $DG = 7.5$

20. GF = 4.5

$\frac{2}{3} = \frac{3}{GF}$

$3^2 + 4^2 = WZ^2$
 $9 + 16 = WZ^2$
 $\sqrt{25} = \sqrt{WZ^2}$
 $5 = WZ$

21. $m\angle G$

53°

22. $m\angle D$

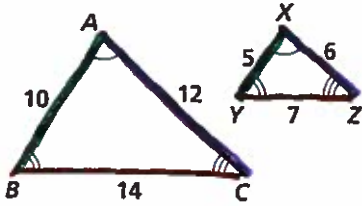
37°

23. WZ

5

Are the polygons similar? If they are, write a similarity statement, and give the similarity ratio. If they are not, explain.

1.

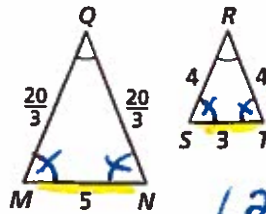


$$\frac{10}{5} = \frac{12}{6} = \frac{14}{7}$$

$$2 = 2 = 2$$

YES

2.

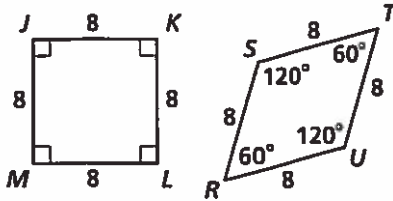


$$\left(\frac{20}{3}\right) / 4 = \frac{5}{3} = \left(\frac{20}{3}\right) / 4$$

$$1.6 = 1.6 = 1.6$$

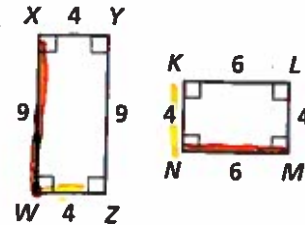
YES

4.



NO, corresponding \angle s are not \cong

6.



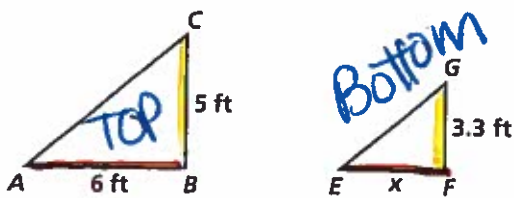
$$\frac{9}{6} = \frac{4}{4} = \frac{9}{6} = \frac{4}{4}$$

$$\frac{3}{2} \neq 1$$

NO

Algebra The polygons are similar. Find the values of the variables.

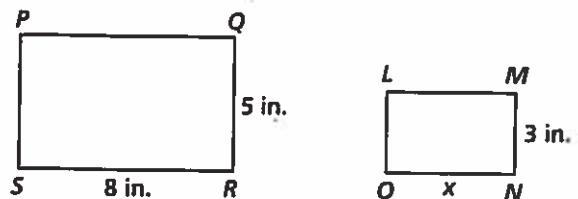
13.



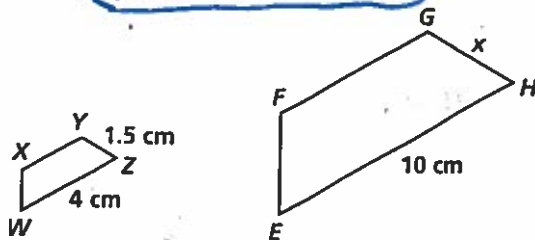
$$\frac{6}{x} = \frac{5}{3.3}$$

$$x = 3.96 \text{ ft}$$

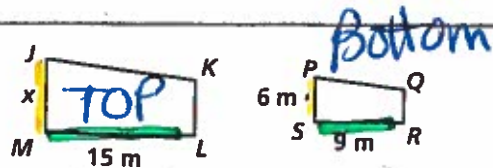
14.



15.



16.



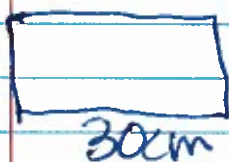
$$\frac{x}{6} = \frac{15}{9}$$

A golden rectangle is a rectangle that can be divided into a square and a smaller rectangle that is similar to the original rectangle.

- in any golden rectangle, the length and width are in the golden ratio which is $\approx 1.618 \approx 1$

(ex) He wants the canvas to be a golden rectangle with its longer horizontal sides 30cm wide. How high should the canvas be?

$$\frac{\text{longer}}{\text{shorter}} = \frac{30\text{cm}}{h} = \frac{1.618}{1} \quad \text{longer shorter}$$



$$h = 18.5\text{cm}$$

p. 375 (1-19, 21-28, 31, 33, 52)

skip #17

The first part of the document is a list of names and their corresponding numbers. The names are written in a cursive script, and the numbers are written in a simpler, more legible script. The list is organized into two columns, with the names on the left and the numbers on the right.

The second part of the document is a list of names and their corresponding numbers, similar to the first part. The names are written in a cursive script, and the numbers are written in a simpler, more legible script. The list is organized into two columns, with the names on the left and the numbers on the right.

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The fourth part of the document is a list of names and their corresponding numbers, similar to the first three parts. The names are written in a cursive script, and the numbers are written in a simpler, more legible script. The list is organized into two columns, with the names on the left and the numbers on the right.

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