

Name: KEY!

Hour: _____

Chapter 7

Lesson 7-1 & 7-3

If I have 10 chocolate cakes and someone asks me for one, how many chocolate cakes do I have left? That's right, 10.



your cards

Lesson 7-1: Ratio & Proportion

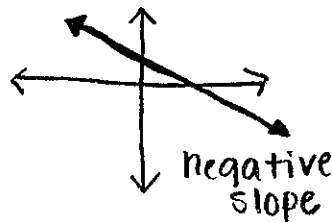
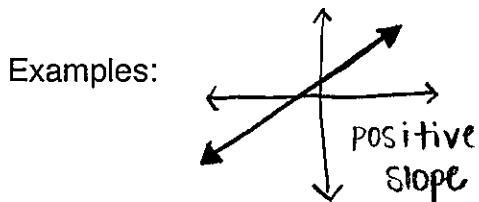
Vocabulary

Ratio: a comparison of two #'s by division

Ratios Comparing x and y	Ratios Comparing 3 and 2
x to y ; $\frac{x}{y}$; x:y	3 to 2 ; $\frac{3}{2}$; 3:2

Slope: a ratio that compares the rise, or change in y, to the run, or change in x.

Formula: $\frac{\text{rise}}{\text{run}} = \frac{y_2 - y_1}{x_2 - x_1}$

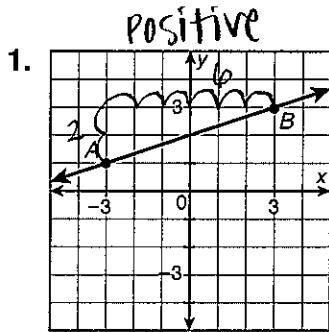


Proportion: an equation stating that two ratios are equal.

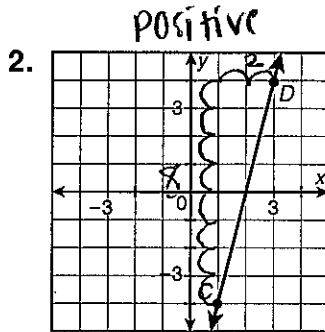
Cross Products Property	extremes $\begin{pmatrix} a & c \\ b & d \end{pmatrix}$ means $a \cdot d = b \cdot c$ *cross multiply*
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Practice

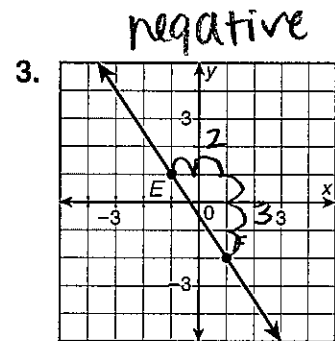
Write a ratio expressing the slope of each line.



$$\frac{\text{rise}}{\text{run}} = \frac{2}{6} = \boxed{\frac{1}{3}}$$



$$\frac{\text{rise}}{\text{run}} = \frac{8}{2} = \boxed{4}$$



$$\frac{\text{rise}}{\text{run}} = \boxed{-\frac{3}{2}}$$

4. The ratio of the side lengths of a triangle is 2:4:5 and the perimeter is 55 cm. What is the length of the shortest side?

$$2x + 4x + 5x = 55$$

$$\frac{11x}{11} = \frac{55}{11}$$

$$\boxed{x = 5}$$

add sides ↗

shortest side:

$$2x \\ 2 \cdot 5 \\ = \boxed{10}$$

5. The ratio of the angle measures in a triangle is 7:13:16. What is the measure of the largest angle?

$$7x + 13x + 16x = 180$$

$$\frac{36x}{36} = \frac{180}{36}$$

$$x = 5$$

add to 180

largest angle:

$$16x \\ 16 \cdot 5 \\ = \boxed{80}$$

Solve each proportion.

6. $\frac{9}{t} = \frac{36}{28}$

$$9 \cdot 28 = t \cdot 36$$

$$\frac{252}{36} = \frac{36t}{36}$$

$$\boxed{7 = t}$$

7. $\frac{2a}{3} = \frac{8}{3a}$

$$2a \cdot 3a = 3 \cdot 8$$

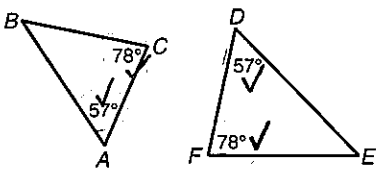
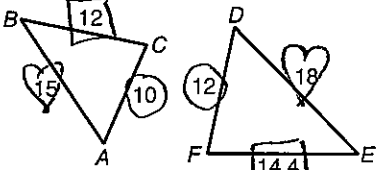
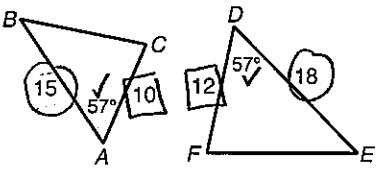
$$\frac{6a^2}{6} = \frac{24}{6}$$

$$\sqrt{a^2} = \sqrt{4}$$

$$\boxed{a = 2}$$

Lesson 7-3: Triangle Similarity (AA, SSS, SAS)

Vocabulary

<p>Angle-Angle (AA) Similarity</p>	<p>2 angles of one \triangle are \cong to 2 angles of another \triangle</p>	 <p>$\triangle ABC \sim \triangle DEF$</p>
<p>Side-Side-Side (SSS) Similarity</p>	<p>3 sides are proportional in one \triangle to 3 sides in another</p>	 <p>$\triangle ABC \sim \triangle DEF$</p>
<p>Side-Angle-Side (SAS) Similarity</p>	<p>2 sides are prop. & angle bet. is \cong to 2 sides & angle bet. in another \triangle.</p>	 <p>$\triangle ABC \sim \triangle DEF$</p>

$$\frac{sm}{sm} = \frac{med}{med} = \frac{lg}{lg}$$

$$\frac{10}{12} = \frac{12}{14.4} = \frac{15}{18}$$

$$.8\bar{3} = .8\bar{3} = .8\bar{3}$$

$$\frac{10}{12} = \frac{15}{18}$$

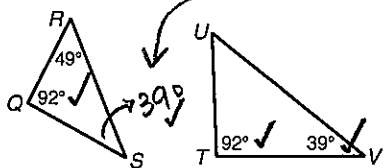
$$.8\bar{3} = .8\bar{3}$$

Practice

Explain how you know the triangles below are similar. Then, write a similarity statement.

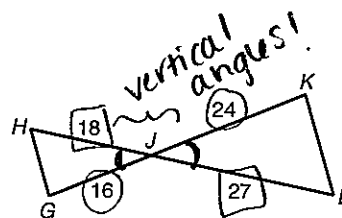
180 - 92 - 49 = 39

1.



AA, since $\triangle QRS$ has 92° & 39° , & $\triangle TUV$ has 92° & 39°
 $\triangle QRS \sim \triangle TUV$

2.

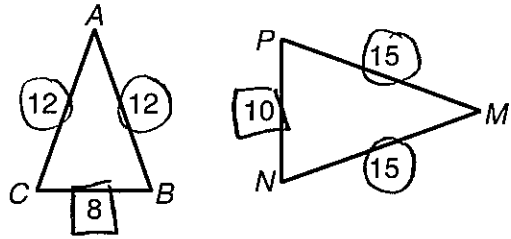


$\frac{16}{24} = .\bar{6}$ & $\frac{18}{27} = .\bar{6}$
& $\angle HJG \cong \angle LJK$. So, by SAS.
 $\triangle HJG \sim \triangle LJK$

3. Is $\triangle ABC \sim \triangle MNP$? Explain...

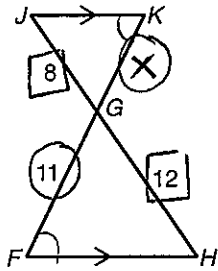
$$\frac{8}{10} = .8, \quad \frac{12}{15} = .8, \quad \frac{12}{15} = .8$$

Yes, by SSS since all 3 sides are proportional.



The triangles below are similar. Find the missing length.

4.



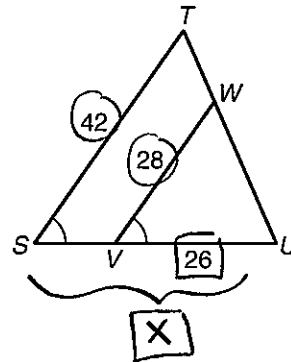
$$\frac{8}{12} \rightarrow \frac{X}{11}$$

$$8 \cdot 11 = 12 \cdot X$$

$$\frac{88}{12} = \frac{12X}{12}$$

$$GK = \boxed{7.3}$$

5.



$$\frac{26}{X} \rightarrow \frac{28}{42}$$

$$X \cdot 28 = 26 \cdot 42$$

$$\frac{28X}{28} = \frac{1092}{28}$$

$$UV = \boxed{39}$$