# Unit 8 Review: Similarity

AK

**Determine whether the triangles are similar. If they are, write a similarity statement. Explain your reasoning.**

**1.**



$$\frac{32}{24} = \frac{20}{15} \ne \frac{18}{14}$$  Not Similar

**2.**
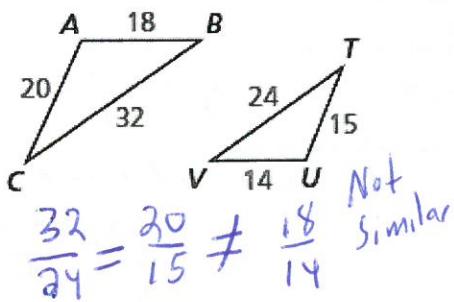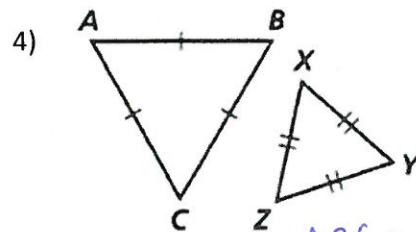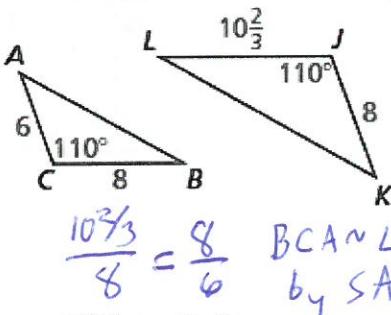


$$\frac{10^2/3}{8} = \frac{8}{6}$$  BCA ∼ LJK by SAS

**3.**



WXP ∼ WYZ by AA

**4)**



ABC ∼ XYZ by SSS

**5) Solve for x.** $\frac{x+2}{15} = \frac{x-1}{6}$

$6x + 12 = 15x - 15$

$27 = 9x$

$3 = x$
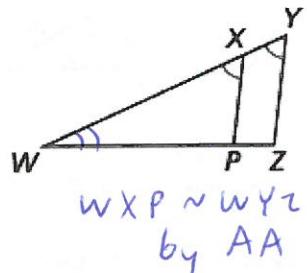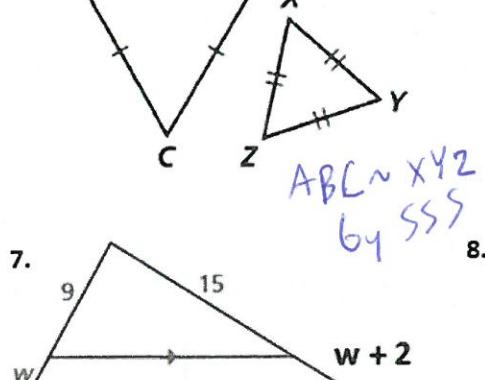
**6) Solve for x.** $\frac{x}{16} = \frac{9}{x}$

$x^2 = 144$

$x = 12$

**7.**
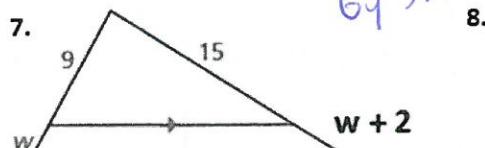


$$\frac{9}{w} = \frac{15}{w+2}$$

$15w = 9w + 18$

$6w = 18$

$w = 3$

**8.**



$$\frac{30}{30+x} = \frac{14}{22}$$

$x \approx 17.14$

$$\frac{y}{14} = \frac{y+15}{22}$$

$22y = 14y + 210$

$y \approx 26.25$
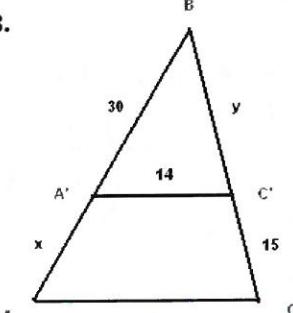
**9.**
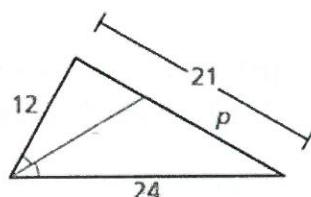


$$\frac{24}{12} = \frac{p}{21-p}$$

$12p = 504 - 24p$

$36p = 504$

$y = 14$

**10) Solve for a and b.**

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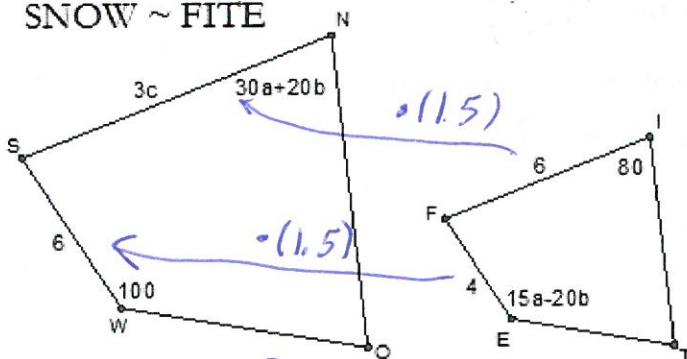


•(1.5)

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$30a + 20b = 80$
$15a - 20b = 100$
$45a = 180$
$a = 4$
$30(4) + 20b = 80$
$40 = -20b$
$-2 = b$
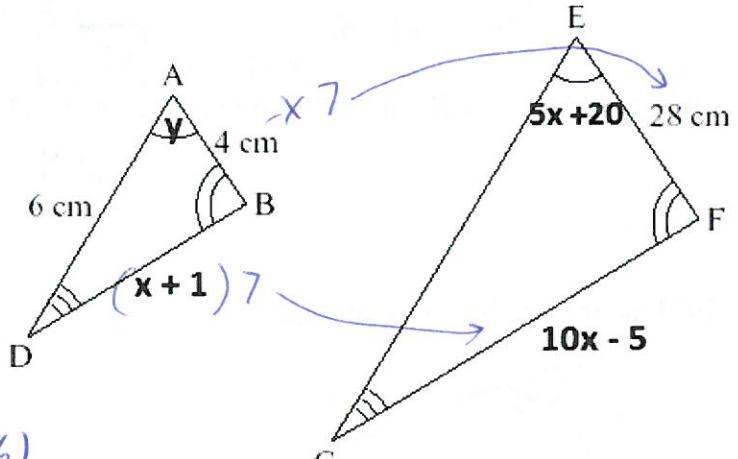
$3c = 1.5(6)$
$3c = 9$
$c = 3$

**11) Solve for x and y.**



$y = 5x + 20$
$-5x + y = 20$
$-5(4) + y = 20$
$y = 40$

$7(x+1) = 10x - 5$
$7x + 7 = 10x - 5$
$12 = 3x$
$4 = x$

12) Solve for x and y.

16 / 36.8
18°
24
y
133°
x°
46
20

$\frac{20}{y} = \frac{16}{24}$

$x = \underline{29°}$ ; $y = \underline{30}$

13) Solve for x.

15 | x - 6
20 | x

$\frac{15}{20} = \frac{x-6}{x}$

$15x = 20x - 120$

$-5x = -120$

$\boxed{x = 24}$
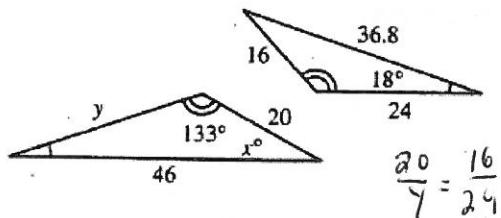
Why are the triangles in 12) similar?

13) In the figure, $\overline{WX} \parallel \overline{YZ}$. Which are possible values for VX and XZ? *(TEKS G.8.A)*

- Ⓐ $VX = 5$ and $XZ = 5$ ✗
- Ⓑ $VX = 6$ and $XZ = 4$ ✗
- Ⓒ $VX = 9$ and $XZ = 6$
- Ⓓ $VX = 8$ and $XZ = 12$

V
4
W
6
X
Y
Z
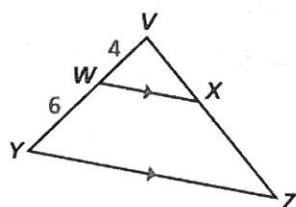
14) The area of ABCD is 126 cm², the area of EFGH is 14 cm² and the perimeter of EFGH is 27. Find the perimeter of ABCD given ABCD~EFGH.

$27 \times 3$
$= \boxed{81}$

Ratio of Areas $= \frac{126}{14} = 9 \rightarrow 3^2$ Scale Factor $= 3$

D          C
A          B
H    G
E    F
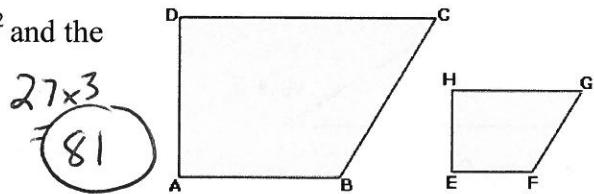
15) Given ABC ~ DEF and the area of DEF is 19.5. Find the area of triangle ABC to the nearest tenth.

$S.F. = \frac{10.1}{7.8} = 1.3$

Ratio of Areas $= 1.68$

ABC area $= 19.5 (1.68) = \boxed{32.7}$

A
10.8cm
B
10.1cm
C

D
6.2cm
E
7.8cm
F

16) Given ABC ~ DEF and the perimeter of ABC is 29 cm, find the perimeter of DEF.

$29 \div 1.3 = 22.3$
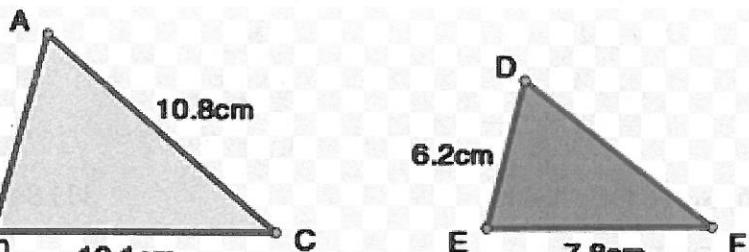
17) Find the height of triangle KLJ.

K
4.7 ft
h
11 ft
J M
11.7 ft
L

$\frac{h}{11} = \frac{4.7}{11.7}$

$11.7h = 51.7$

$\boxed{h = 4.41}$