Name _____

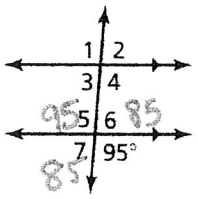
Hour _____

PreAlgebra: Course 3

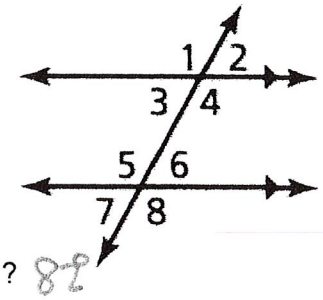
Chapter 3 Review

Use the figure to find the measure of the angle. Explain your reasoning.

1. $\angle 3$ 85°
2. $\angle 5$ 95°
3. $\angle 6$ 85°
4. $\angle 2$ 85°



Complete the statement. Explain your reasoning.

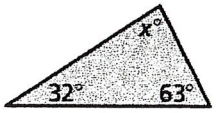


5. If the measure of $\angle 3 = 46°$, then the measure of $\angle 6$ = ? 46°
6. If the measure of $\angle 5 = 102°$ then the measure of $\angle 8$ = ? 102°
7. If the measure of $\angle 4 = 98°$ then the measure of $\angle 7$ = ? 82°
8. If the measure of $\angle 6 = 59°$ then the measure of $\angle 4$ = ? 121°

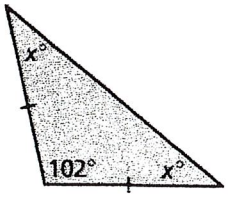
Find the measure of x given the following interior angle measures.

9. 

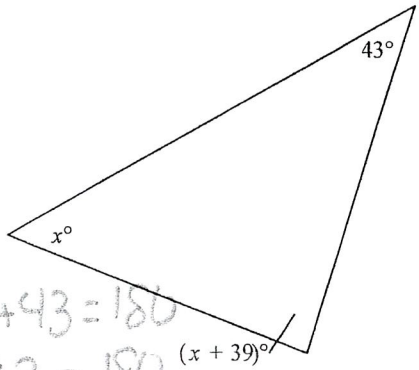
35+35+x=180
70+x=180
-70 -70
x=110

10. 

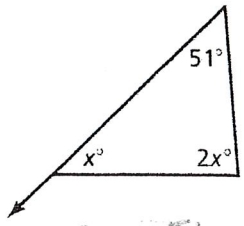
32+63+x=180
95+x=180
-95 -95
x=85

11. 

x+x+102=180
2x+102=180
-102 -102
2x=78
2 2
x=39

12. 

x+x+39+43=180
2x+82=180
-82 -82
2x=98

13. 

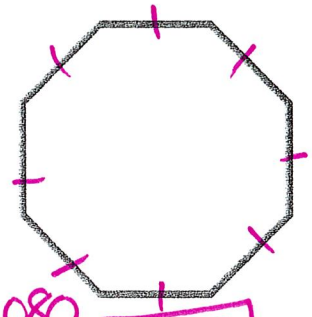
x+2x+51=180
3x+51=180
-51 -51
3x=129
3 3

14.

$(8-2)180$

$(6)180$

1080



$\frac{1080}{8}$

$135°$

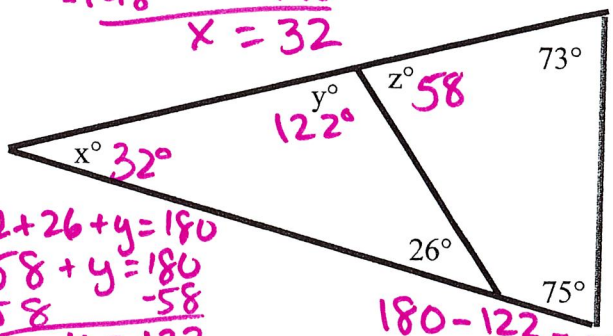
15.

$73+75+x=180$

$148+x=180$

$-148 \quad -148$

$x=32$



$32+26+y=180$

$58+y=180$

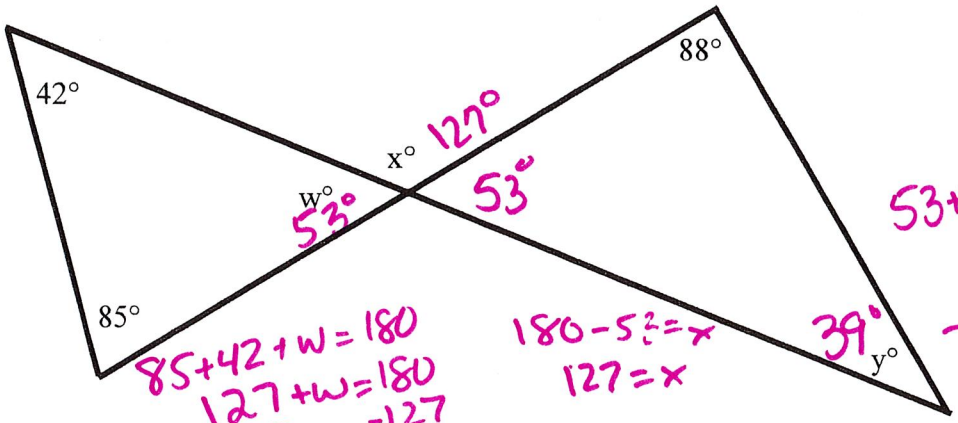
$-58 \quad -58$

$y=122$

$180-122=z$

$58°=z$

16.



$85+42+w=180$

$127+w=180$

$-127 \quad -127$

$w=53$

$180-53=x$

$127=x$

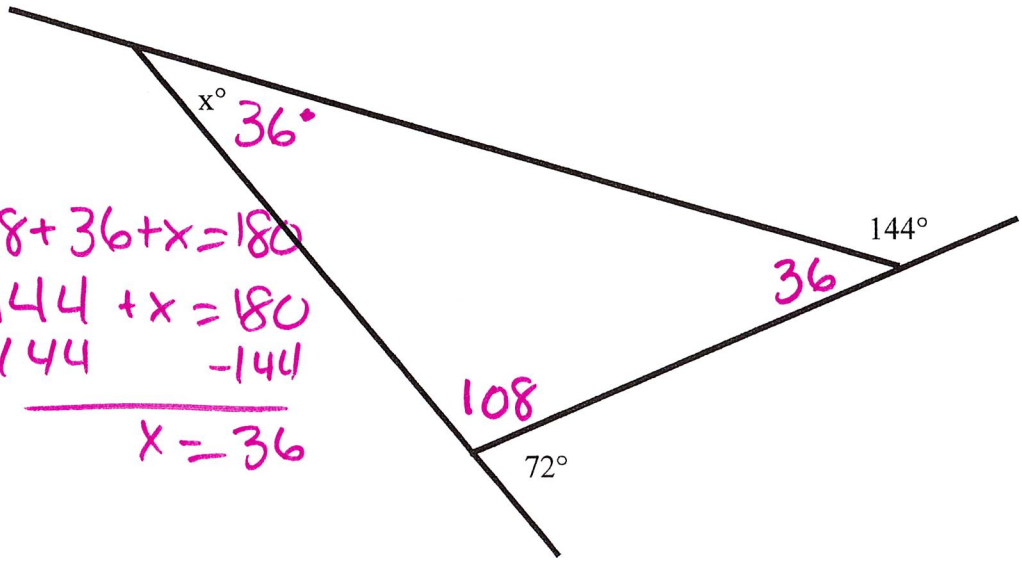
$53+88+y=180$

$141+y=180$

$-141 \quad -141$

$y=39$

17.



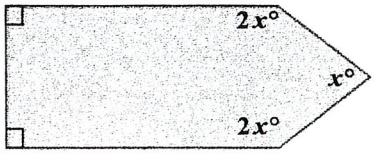
$108+36+x=180$

$144+x=180$

$-144 \quad -144$

$x=36$

18.



$(5-2)180$

$(3)180$

540

$5x+90+90=540$

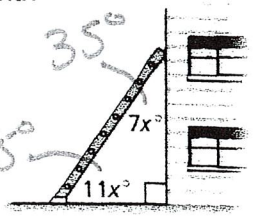
$5x+180=540$

$-180 \quad -180$

$\frac{5x}{5}=\frac{360}{5}$

$x=72$

18. A ladder leaning against a wall forms a triangle and exterior angles with the wall and the ground. What are the measures of the angles? Justify your answer.



$7x+11x+90=180$

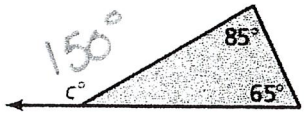
$18x+90=180$

$-90 \quad -90$

$\frac{18x}{18}=\frac{90}{18}$ $x=5$

19. Find the measure of the exterior angle.

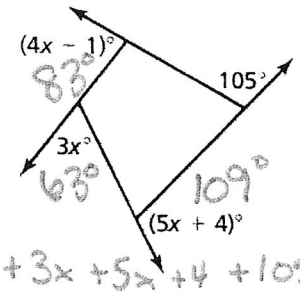
a.



$C=85+65$

$C=150°$

b.



$4x-1+3x+5x+4+105=360$

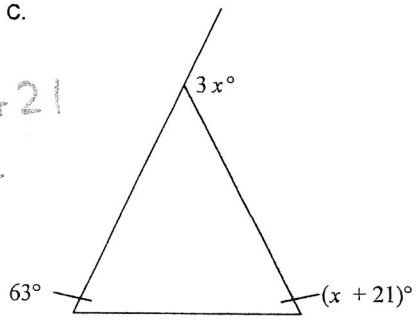
$12x+108=360$

$-108 \quad -108$

$\frac{12x}{12}=\frac{252}{12}$

$x=21$

c.



$3x=63+x+21$

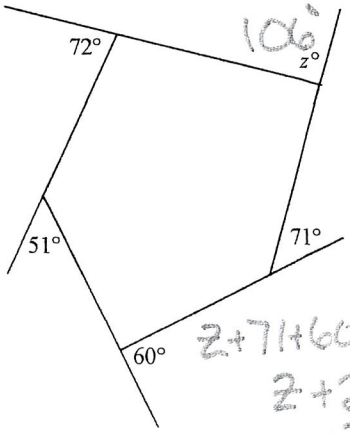
$3x=84+x$

$-x \quad -x$

$\frac{2x}{2}=\frac{84}{2}$

$x=42$

d.



$z+71+60+51+72=360$

$z+254=360$

$-254 \quad -254$

$z=106$

e.

$4x+9=2x+3x-12$

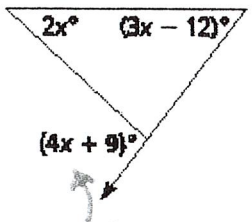
$4x+9=5x-12$

$-4x \quad -4x$

$9=x-12$

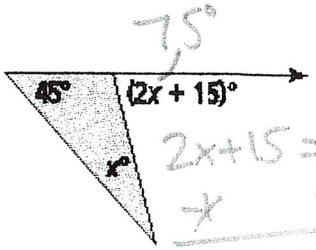
$+12 \quad +12$

$21=x$



93°

f.



$2x+15=x+45$

$-x \quad -x$

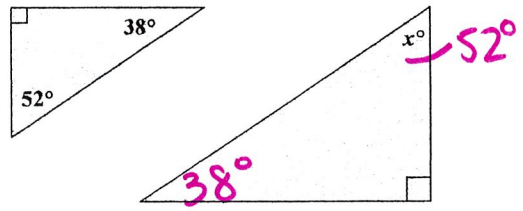
$x+15=45$

$-15 \quad -15$

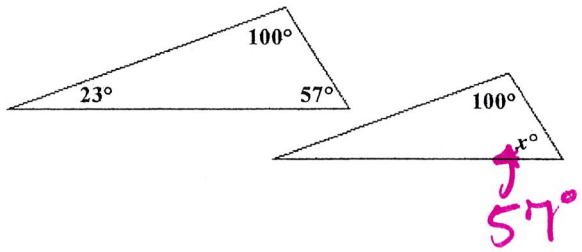
$x=30$

20. The triangles are similar. Find the value of *x*.

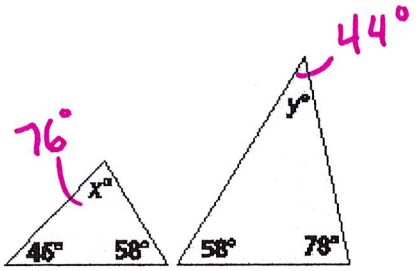
a.



b.



21. Are the two triangles below similar? Explain.



$46+58+x=180$

$104+x=180$

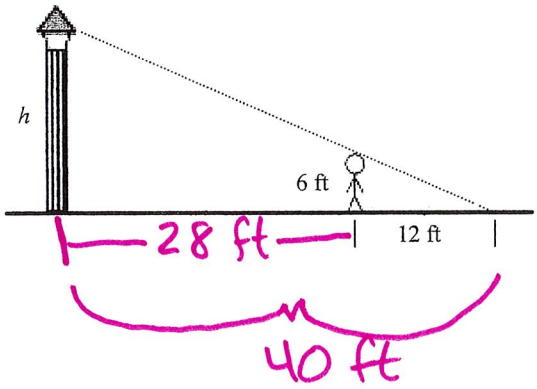
$x=76$

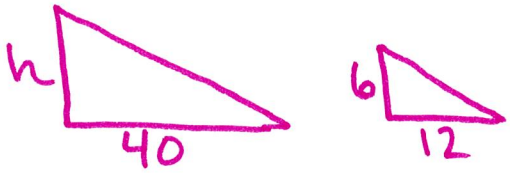
$58+78+y=180$

$y=44$

No

22. A person standing 28 feet from a street light casts a shadow as shown. What is the height *h* of the street light? Assume the triangles are similar.





$\frac{h}{6}=\frac{40}{12}$

$\frac{240}{12}=\frac{12h}{12}$

$h=20\text{ ft}$

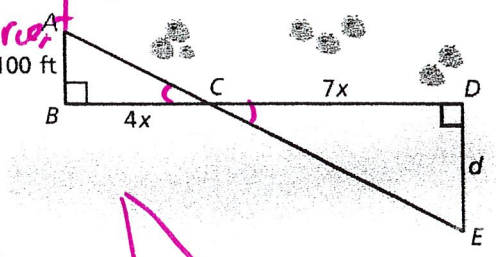
23. You are trying to find the distance d across the river.

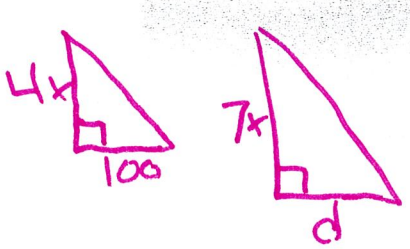
a. Explain why triangle *ABC* and *EDC* are similar.

$\angle B \cong \angle D$ All three angles of the triangle are congruent

$\angle C \cong \angle C$

b. What is the distance across the river?





$\frac{4x}{7x}=\frac{100}{d}$

$\frac{700x}{4x}=\frac{4xd}{4x}$

$d=175\text{ ft}$