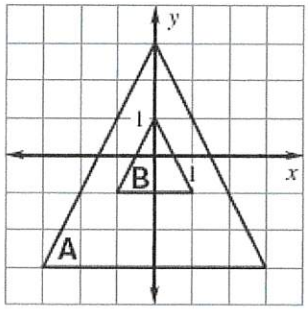
Honors Math 2
12.1

Name Key
Period

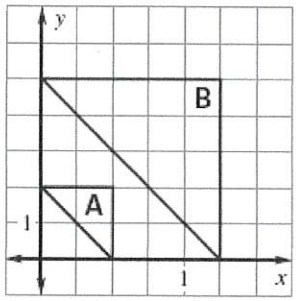
State whether the dilation is a reduction or enlargement.

1. $(x, y) \rightarrow (3x, 3y)$ enlargement
2. $(x, y) \rightarrow \left(\frac{1}{2}x, \frac{1}{2}y\right)$ reduction
3. $(x, y) \rightarrow \left(\frac{5}{4}x, \frac{5}{4}y\right)$ enlargement
4. $(x, y) \rightarrow (.93x, .93y)$ reduction

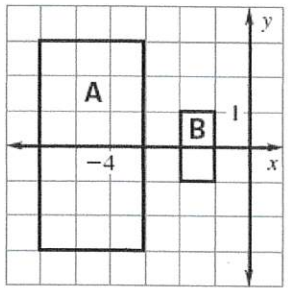
Determine whether the dilation from Figure A to Figure B is a reduction or enlargement, then find it scale factor.

5. 

reduction k= $\frac{1}{3}$

6. 

enlargement k= $\frac{5}{2}$

7. 

reduction k= $\frac{1}{3}$

Given △ABC A(6,-1), B(-2,-4), C(1,2), Find A', B', C'

8. Dilation: $(x, y) \rightarrow (3x, 3y)$
Translation: $(x, y) \rightarrow (x - 2, y - 1)$

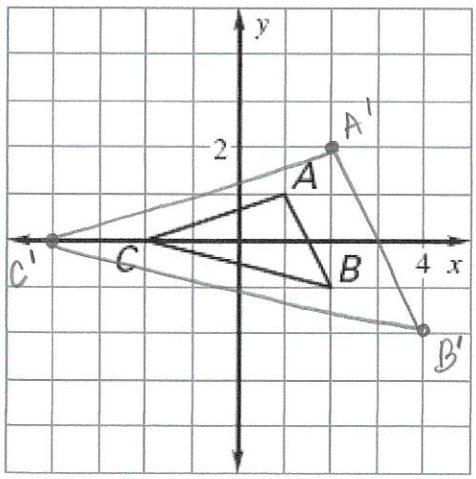
Dilate Translate
A(6,-1) A'(18,-3) A'' (16, -4)
B(-2,-4) B'(-6,-12) B'' (-8, -13)
C(1,2) C'(3,6) C'' (1, 5)

9. Dilation: $(x, y) \rightarrow \left(\frac{1}{2}x, \frac{1}{2}y\right)$
Translation: $(x, y) \rightarrow (x + 2, y + 1)$

A(6,-1) A'(3,-½) A'' (5, ½)
B(-2,-4) B'(-1,-2) B'' (1, -1)
C(1,2) C'(½, 1) C'' (2.5, 2)

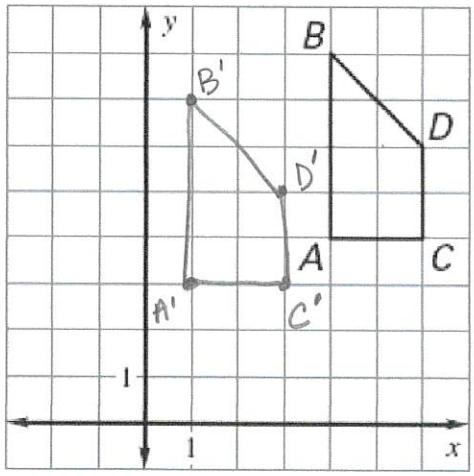
Draw a dilation or transformation of the figure

10. Dilation: $(x, y) \rightarrow (2x, 2y)$

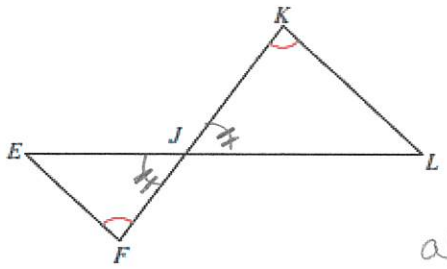


11. Translation: $(x, y) \rightarrow (x - 3, y - 1)$

left 3 down 1



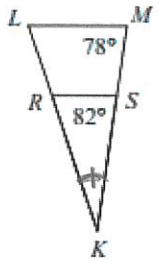
12.



alt. int. ∠'s
vertical ∠'s

A) similar; SSS similarity
B) similar; SAS similarity
C) similar; AA similarity
D) not similar

13.

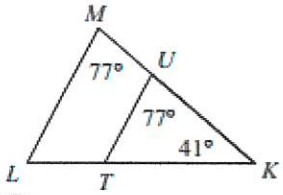


∠K ≅ ∠K reflexive
∠LMK ≇ ∠RSK

A) similar; AA similarity
B) similar; SAS similarity
C) similar; SSS similarity
D) not similar

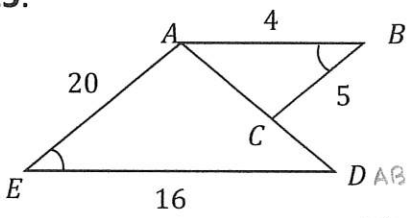
14.

∠K ≅ ∠K
∠LMK ≅ ∠TUK



A) similar; AA similarity
B) not similar
C) similar; SSS similarity
D) similar; SAS similarity

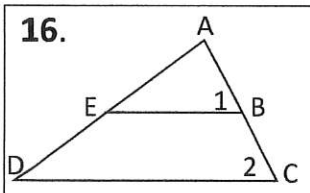
15.



∠B ≅ ∠E
AB/BC = DE/AE
4/5 = 16/20
4/5 = 4/5

A) similar; AA similarity
B) similar; SAS similarity
C) similar; SSS similarity
D) not similar

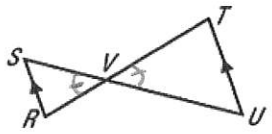
16.



Given: ∠1 ≅ ∠2
Prove: $\Delta ABE \sim \Delta ACD$

S	R
∠1 ≅ ∠2	Given
∠A ≅ ∠A	reflexive
△ABE ~ △ACD	AA ~

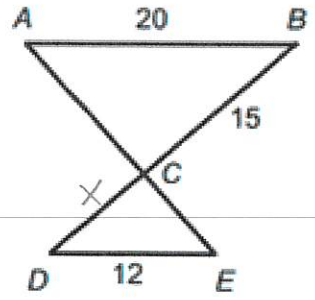
17.



Given: $SR \parallel TU$
Prove: $\Delta SVR \sim \Delta UVT$

S	R
SR ∥ TU	Given
∠SVR ≅ ∠UTV	vert ∠'s
∠VRS ≅ ∠VTU	alt. int. ∠'s
△SVR ~ △UVT	AA ~

18. In the diagram below, AB is parallel to DE. AB=20 inches, DE=12 inches, and BC=15 inches. What is the length of DC?

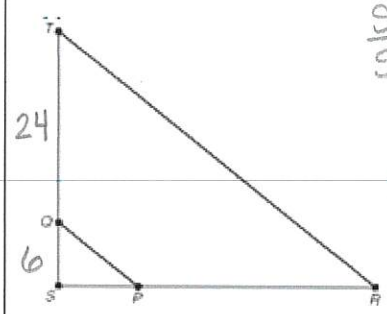


$\frac{20}{12} = \frac{15}{X}$

$20X = 180$

$X = 9$

19. In triangle STR , QP and TR are parallel. If SQ = 6 units, QT = 24 units, and the perimeter of triangle SQP is 20 units, what is the perimeter of triangle STR ?



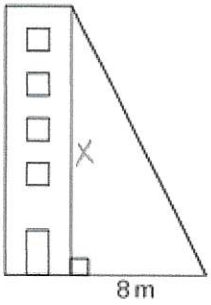
$\frac{SQ}{ST} = \frac{P\triangle SQP}{P\triangle STR}$

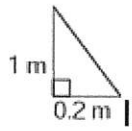
$\frac{6}{30} = \frac{20}{X}$

$6X = 600$

$X = 100$ units

20. Assuming the two triangles are similar, find the tower's height from the given measurements below.





$\frac{X}{8} = \frac{1}{.2}$

$.2X = 8$

$X = 40$m

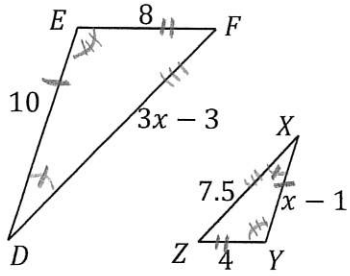
21. Find the value of x that makes $\triangle DEF \sim \triangle XYZ$

$\frac{8}{4} = \frac{3X-3}{7.5}$

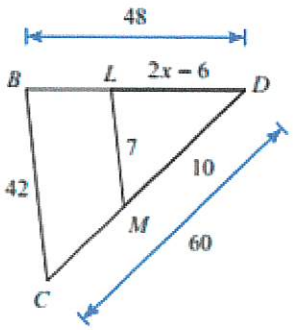
$60 = 12X - 12$

$72 = 12X$

$X = 6$



22. Solve for x. The triangles in each pair are similar.



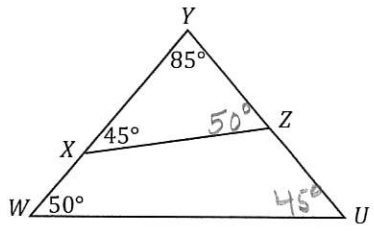
$\frac{10}{60} = \frac{2X-6}{48}$

$480 = 120X - 360$

$840 = 120X$

$X = 7$

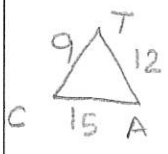
23. Decide if the two triangles are similar, if they are write the similarity statement. yes

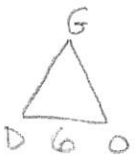


$\triangle WYU \sim \triangle ZYX$

24.

If the scale factor from ΔCAT *to* ΔDOG is $\frac{2}{5}$ and $CA = 15, AT = 12$ *and* $CT = 9$ what is the length of the longest side of ΔDOG? What is the perimeter of ΔDOG?

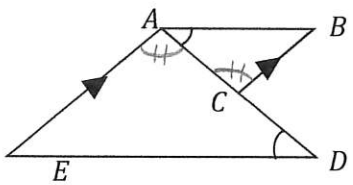




longest side
$15(2/5) = 6$

$\frac{6}{15} = \frac{P_{dog}}{36} \Rightarrow$

25. Are the two triangles similar? If they are state why and write a similarity statement.



$\Delta ABC \sim \Delta DEA$

AA ~

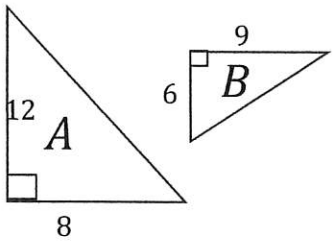
2 sets of Alt. int. $\angle$'s

Perimeter
14.4

19. Your friend claims that $\Delta JKL \sim \Delta MNO$ by SAS Similarity Theorem when $JK = 18$, $m\angle K = 130°$, $KL = 16, MN = 9, m\angle N = 65°$, and $NO = 8$. Do you support her claim? Explain your reasoning.

NO $\angle K \neq \angle N$

20. Determine if the two triangles are similar. If they are, find the scale factor of ΔA to ΔB.



$\frac{8}{12} = \frac{6}{9}$

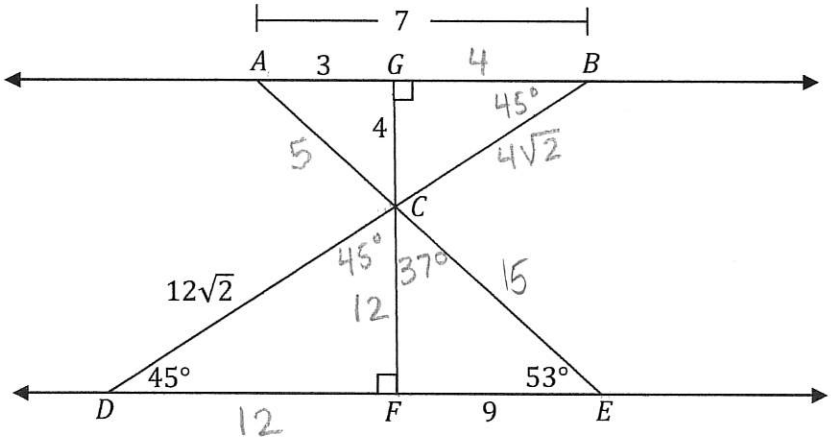
A B

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

yes by SAS

$K = 2/3$

Use the following diagram for questions 23-30.



23. $\Delta CAG \sim$ ΔCEF

24. $\Delta DCF \sim$ ΔBCG

25. $\Delta ACB \sim$ ΔECD

26. $m\angle ECF =$ $37°$

27. $m\angle ECD =$ $82°$

28. $m\angle ACB =$ $82°$

29. $CF =$ 12

30. $BC =$ $4\sqrt{2}$

31. $DE =$ 21