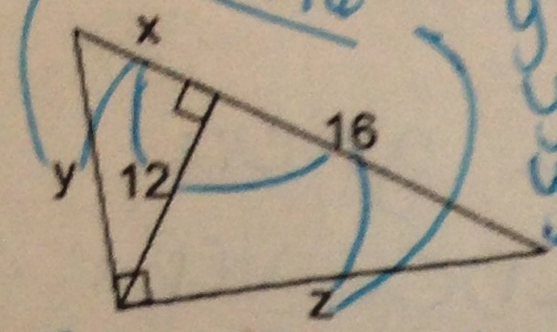
Geometry Review Problems

1. x= 9 y= 15 z= 20

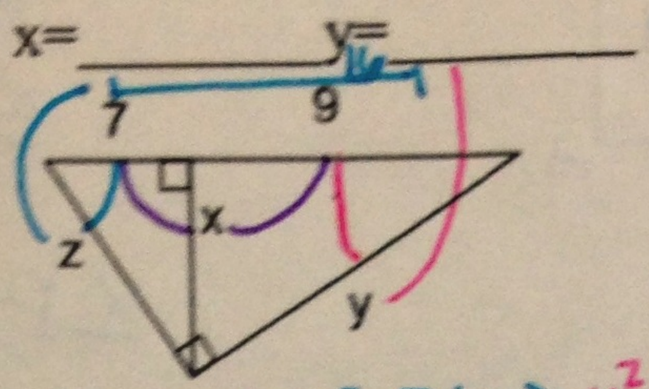


x+16

$y^2 = 9(25)$
$y^2 = 225$
$y = 15$

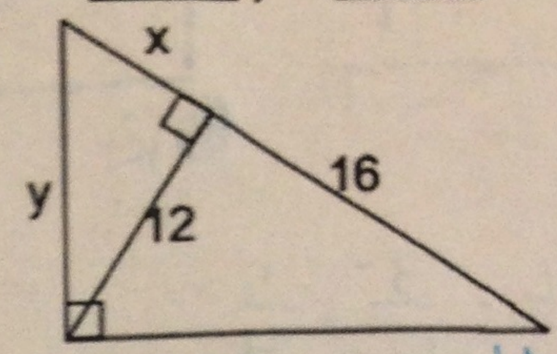
$12^2 = 16x$ $z^2 = 16(x+16)$
$144 = 16x$ $z^2 = 16(25)$
$x = 9$ $z^2 = 400$
$z = 20$

2. x= y=



$x^2 = 7(9)$ $z^2 = 7(16)$ $y^2 = 9(16)$
$x^2 = 63$ $z^2 = 112$ $y^2 = 144$
$x = 3\sqrt{7}$ $z = 4\sqrt{7}$ $y = 12$

3. x = _____ y = _____ z = _____



same as #1

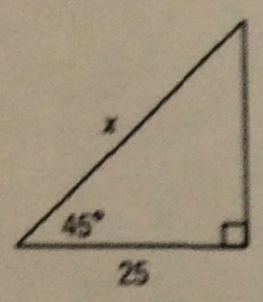
4. Find the geometric mean of 8 and 18.

$\sqrt{8(18)} = \sqrt{144} = 12$

5. Find the geometric mean of 20 and 25

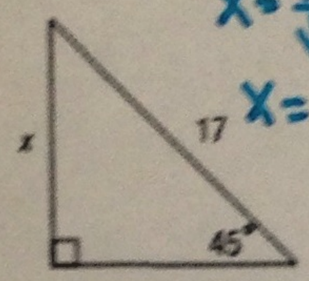
$\sqrt{20(25)} = \sqrt{500} = 10\sqrt{5}$

6.



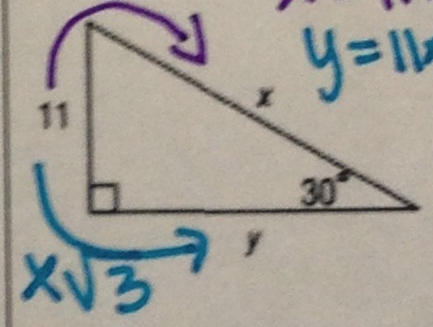
$x = 25\sqrt{2}$

7.



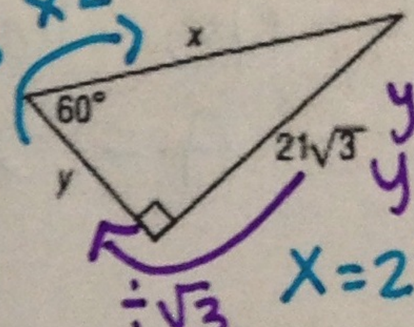
$x = \frac{17}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}}$
$x = \frac{17\sqrt{2}}{2}$

8. ×2



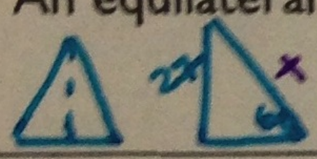
$x = 11 \times 2 = 22$
$y = 11 \times \sqrt{3} = 11\sqrt{3}$
$\times\sqrt{3}$

9. ×2



$y = \frac{21\sqrt{3}}{\sqrt{3}}$
$y = 21$
$\div\sqrt{3}$
$x = 21 \times 2 = 42$

10. An equilateral triangle has an altitude length of 27 feet. Determine the length of a side of the triangle.

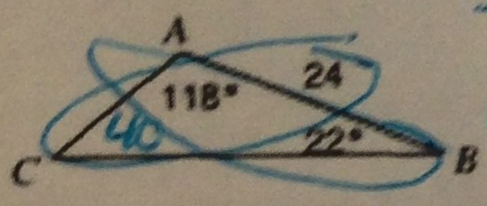


$\frac{27}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{27\sqrt{3}}{3} = 9\sqrt{3}$

$x = 9\sqrt{3} \times 2 = 18\sqrt{3}$

Use law of sine to find each measurement indicated. Round your answers to the nearest tenth.

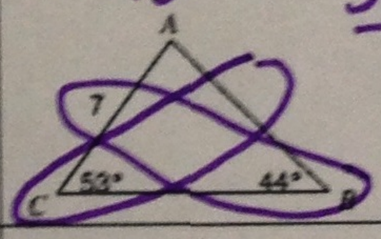
11. AC



$\frac{\sin 40}{24} = \frac{\sin 22}{AC}$

$AC = \frac{24 \sin 22}{\sin 40} = 14$

12. AB

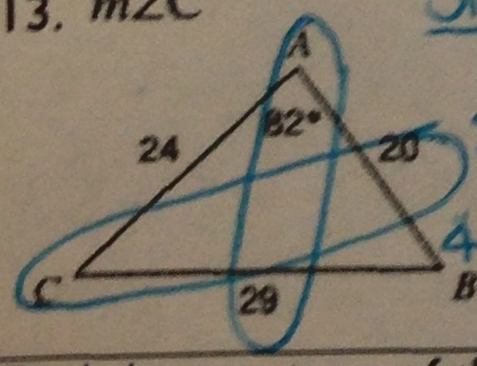


$\frac{\sin 44}{7} = \frac{\sin 53}{AB}$

$AB \cdot \sin 44 = 7 \cdot \sin 53$

$AB = \frac{7 \cdot \sin 53}{\sin 44} \approx 8$

13. m∠C

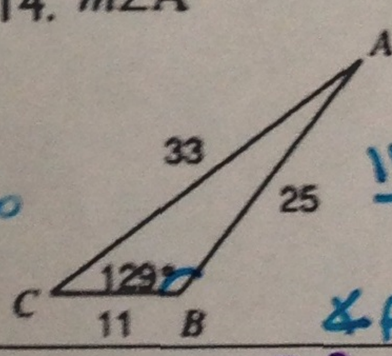


$\frac{\sin C}{20} = \frac{\sin 82}{29}$

$\sin C = \frac{20 \sin 82}{29}$

$\angle C = \sin^{-1}\left(\frac{20 \sin 82}{29}\right) = 43°$

14. m∠A



$\frac{\sin 129}{33} = \frac{\sin A}{11}$

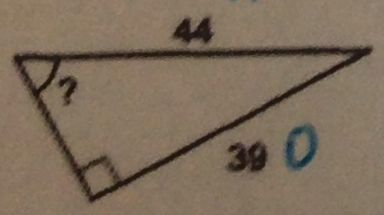
$\frac{11 \sin 129}{33} = \sin A$

$\angle A = \sin^{-1}\left(\frac{11 \sin 129}{33}\right) = 15°$

Find the measure of the indicated angle to the nearest degree.

SOH CAH TOA

15.

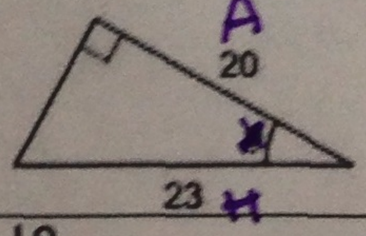


$\sin x = \frac{39}{44}$

$x = \sin^{-1}\left(\frac{39}{44}\right)$

$x = 62°$

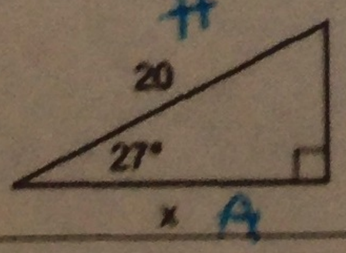
16.



$\cos x = \frac{20}{23}$

$\angle x = \cos^{-1}\left(\frac{20}{23}\right) = 29.6°$

17.

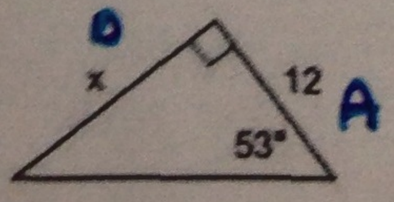


$\cos 27 = \frac{x}{20}$

$20 \cdot \cos 27 = x$

$x = 18$

18.



~~tan 53~~

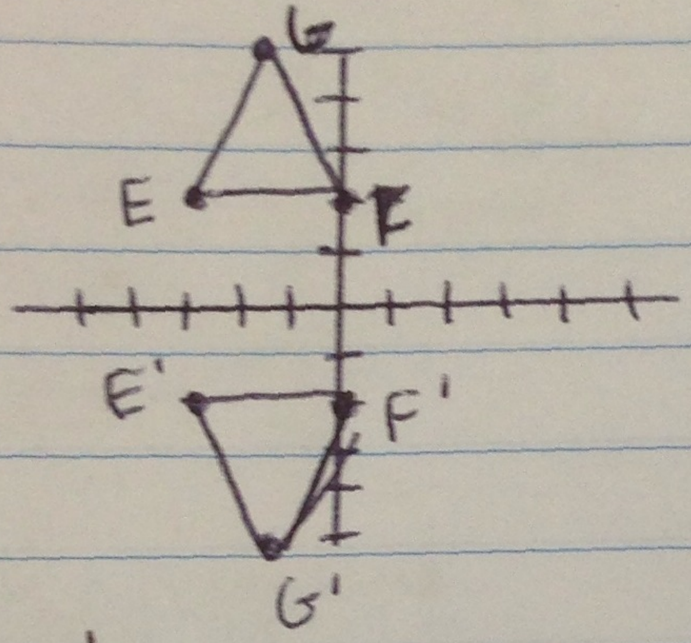
$\tan 53 = \frac{x}{12}$

$12 \cdot \tan 53 = x = 16$

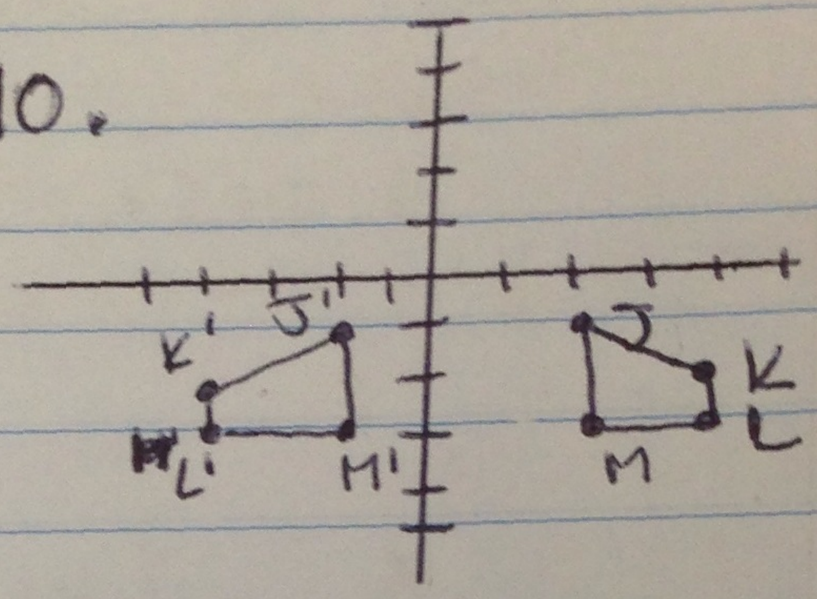
1. Regular Tessellation
2.
3. isometry
4. composition transformation

5. yes reflection 6. no 7. no 8. yes

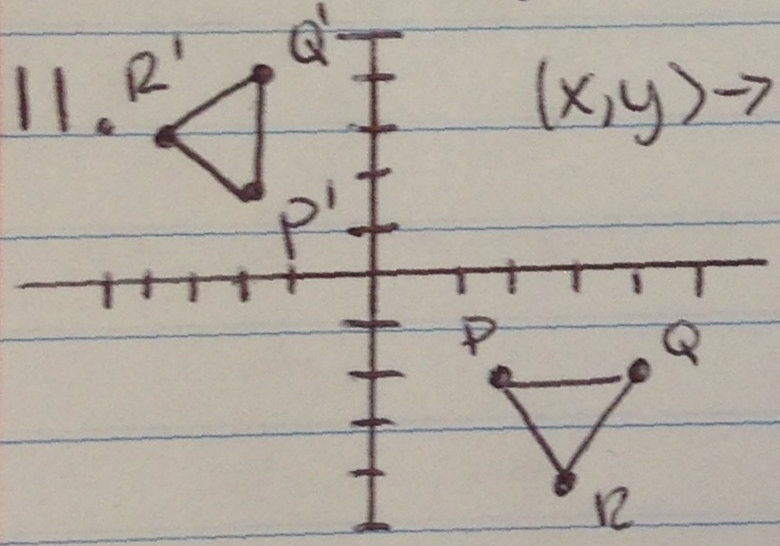
9.



10.

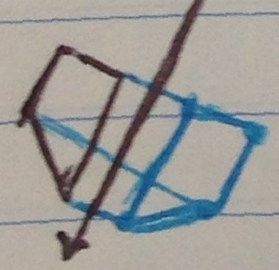


11.



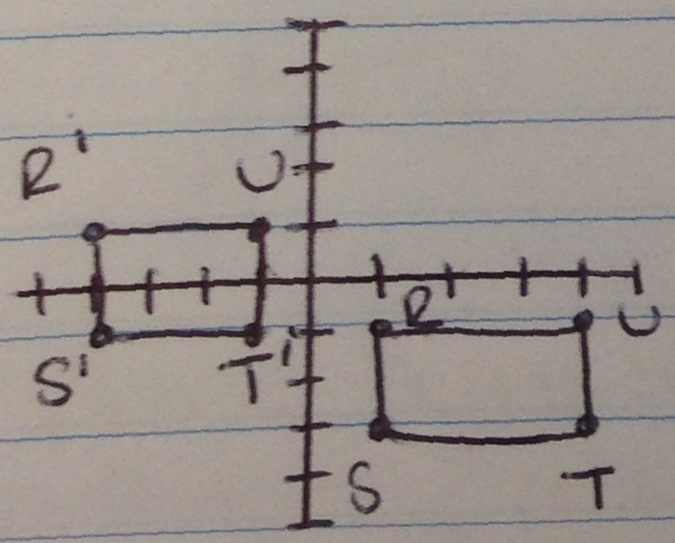
$(x,y) \rightarrow (y,x)$ $P(2,-2) \rightarrow P'(-2,2)$
$Q(4,-2) \rightarrow Q'(-2,4)$
$R(3,-4) \rightarrow R'(-4,3)$

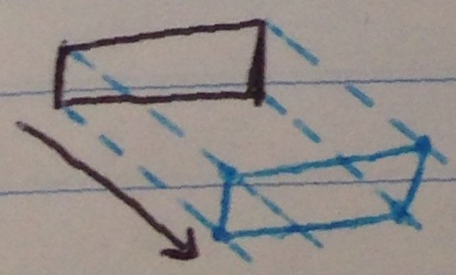
#2.



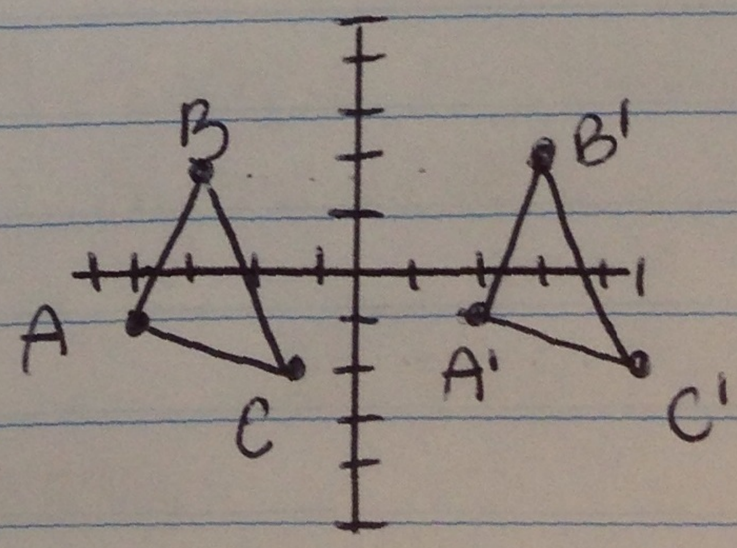
13. NO 14. yes translation 15. NO 16. NO

17)





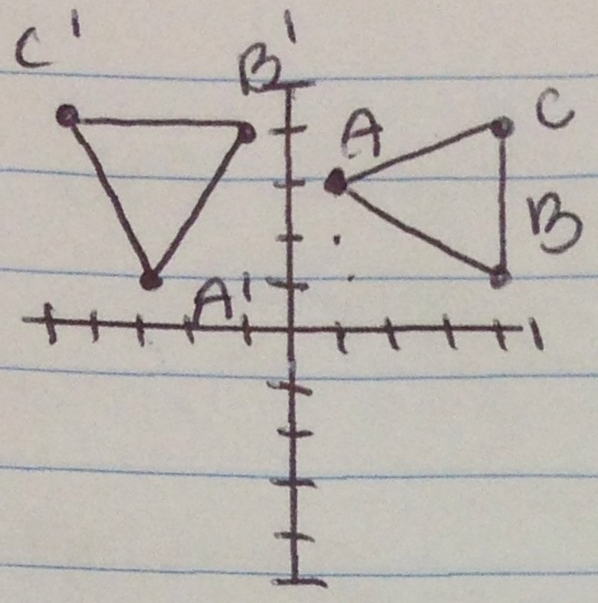
18.



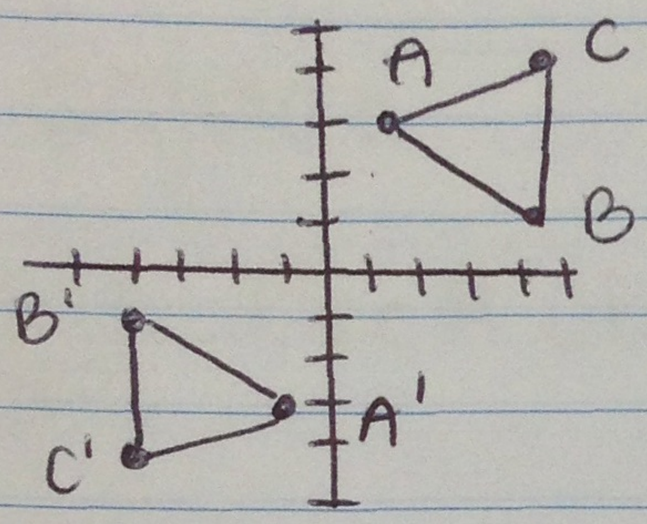
21. yes Rotation 22. yes Rotation 23. no

24. ~~yes~~ no

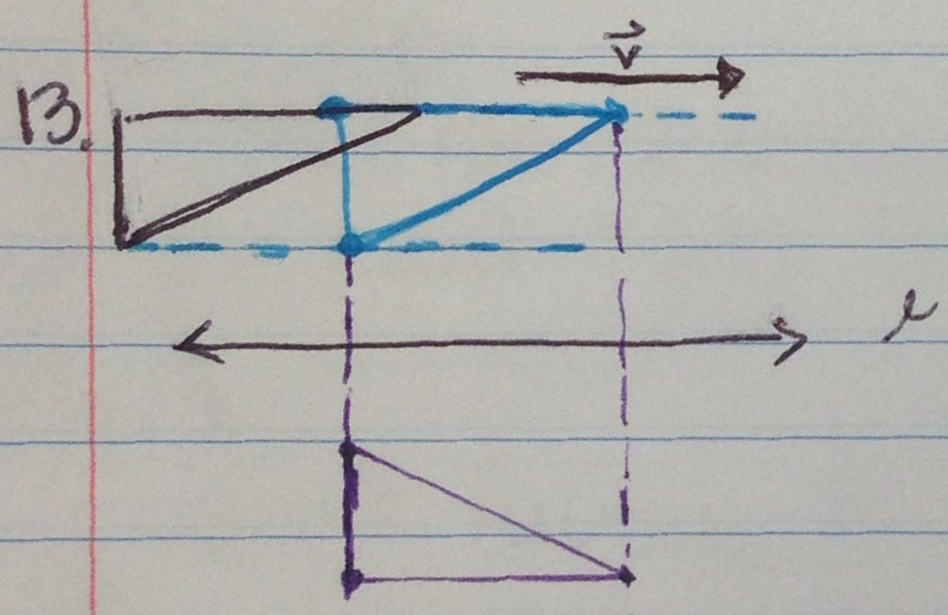
* PURPLE = final Answer

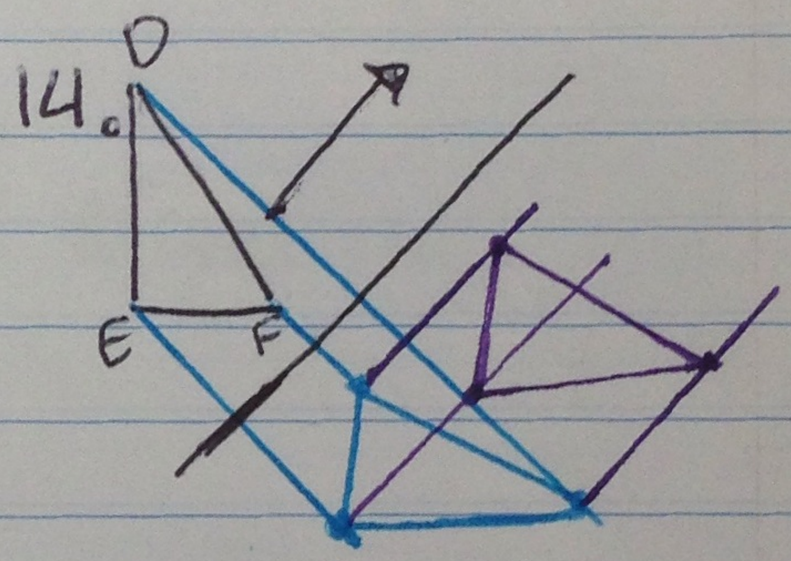
25. 

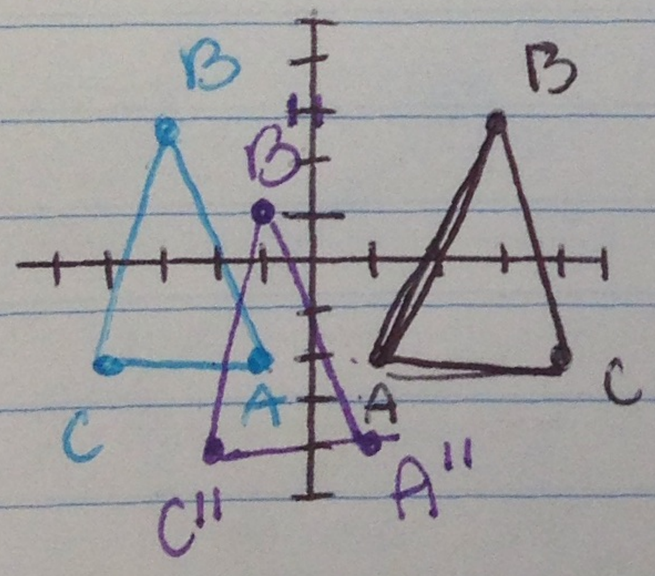
Rotate 90°: $(x,y) \to (-y, x)$
$A(1,3) \to A'(-3,1)$
$B(4,1) \to B'(-1,4)$
$C(4,4) \to C'(-4,4)$

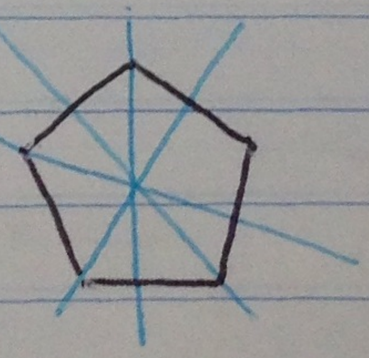
26. 

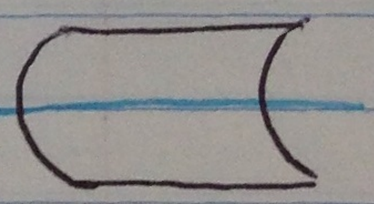
Rotate 180°: $(x,y) \to (-x,-y)$
$A(1,3) \to A'(-1,-3)$
$B(4,1) \to B'(-4,-1)$
$C(4,4) \to C'(-4,-4)$

13. 

14. 

27. 

31. 

32. 

19. plane symmetry ;
symmetry about an axis

20. Plane symmetry
symmetry about an axis

21. plane symmetry

33. yes
order = 3
$\measuredangle = \frac{360}{3} = 120°$

34. No

35. yes
order = 3
$\measuredangle = \frac{360}{3} = 120°$

36. yes Rotational symmetry
order 2
$\frac{360}{2} = 180°$

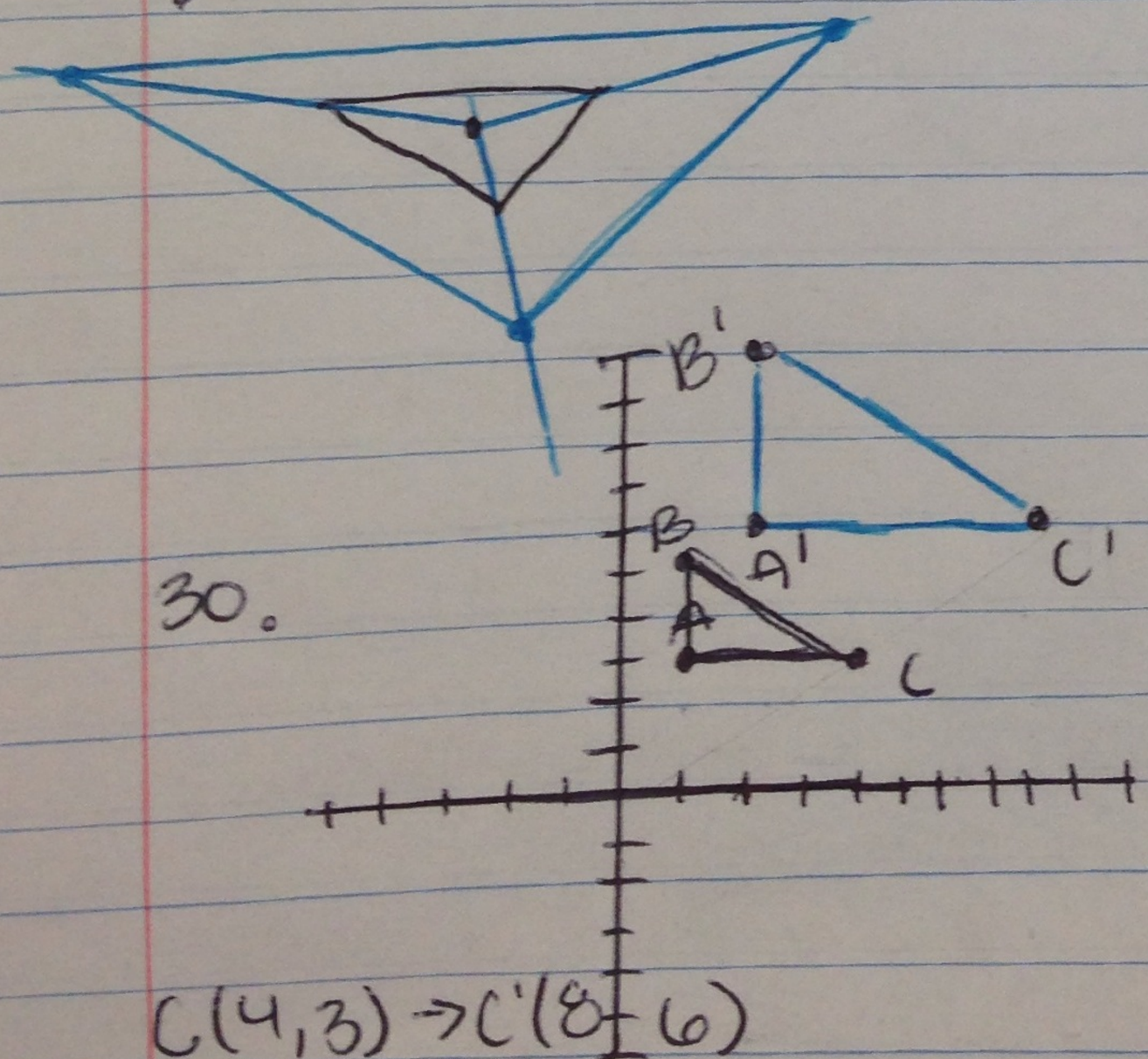
41. neither 42. semi-regular

43. regular 44. neither

4a. yes (see ** above)
120

4b. no
90 + 120 = 210 + 90 = 300
you can't make 360° w/ 90° and 120°

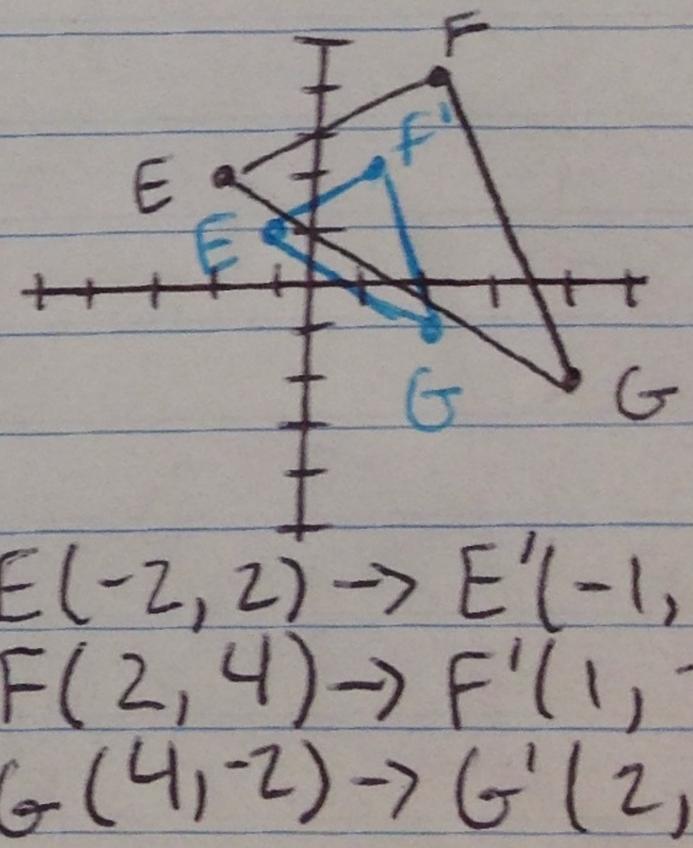
9-7
scale factor: 3



30.

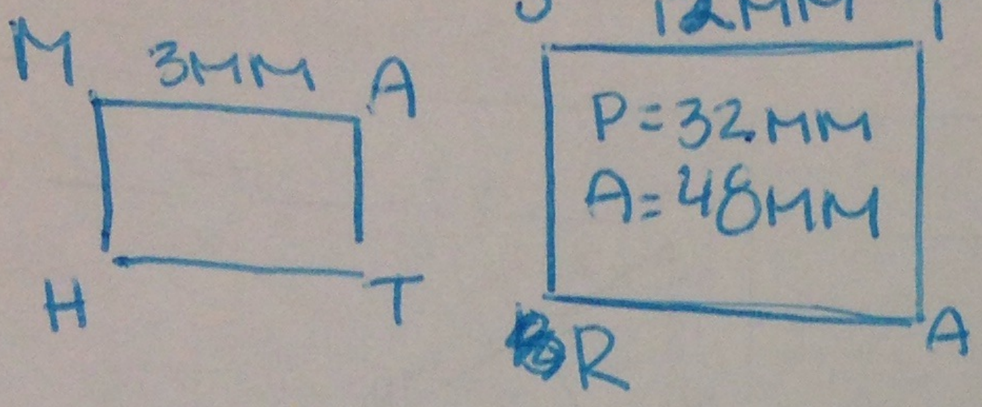
C(4,3) → C'(8,6)
A(1,3) → A'(2,6)
B(1,5) → B'(2,10)

31.



E(-2, 2) → E'(-1, 1)
F(2, 4) → F'(1, 2)
G(4, -2) → G'(2, -1)

1) Chpter 7 Review



SF: $\frac{3}{12} = \frac{1}{4}$

$\frac{1}{4} = \frac{P}{32}$ $\quad 32 = 4P$

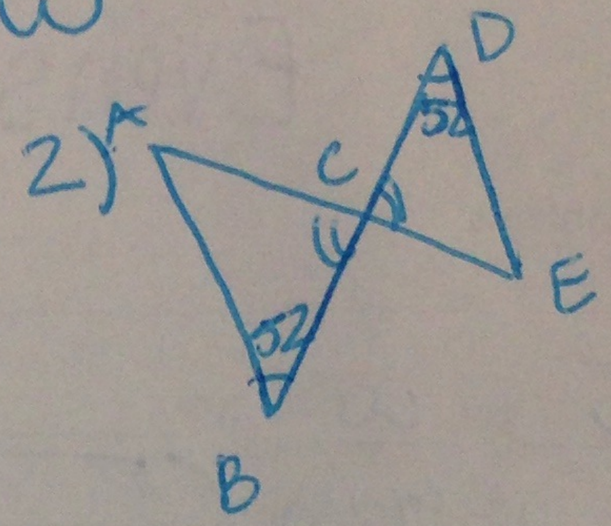
$P = 8$

$\frac{1^2}{4^2} = \frac{1}{16} = \frac{A}{48}$

$48 = 16A$

$A = 3$

2)

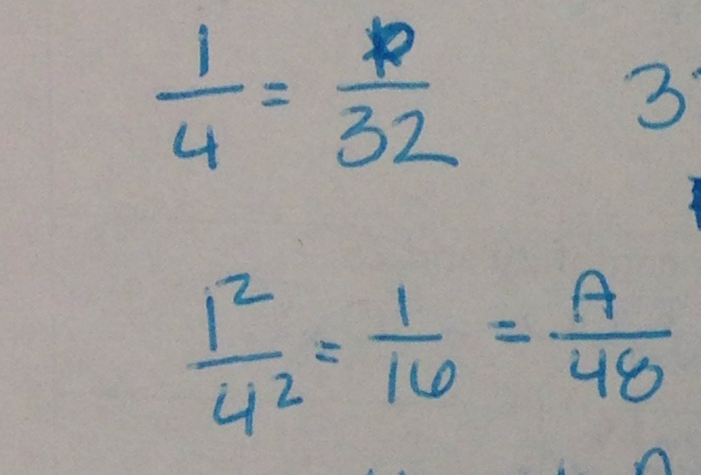


$\angle B \cong \angle D$ given

$\angle ACB \cong \angle DCE$ Vert $\angle$s

$\Delta ABC \sim \Delta EDC$ by AA~.

3)



$\frac{6}{14} = \frac{x}{16}$

$96 = 14x$

$6.9 = x$