

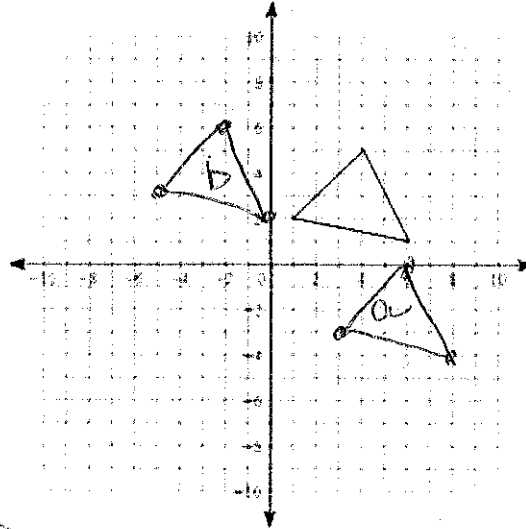
1. What are the 4 types of transformations?

translate, rotate, reflect, dilate

2. Translate the figure using these rules.

a. $(x, y) \rightarrow (x+2, y-5)$

b. $(x, y) \rightarrow (x-6, y+1)$



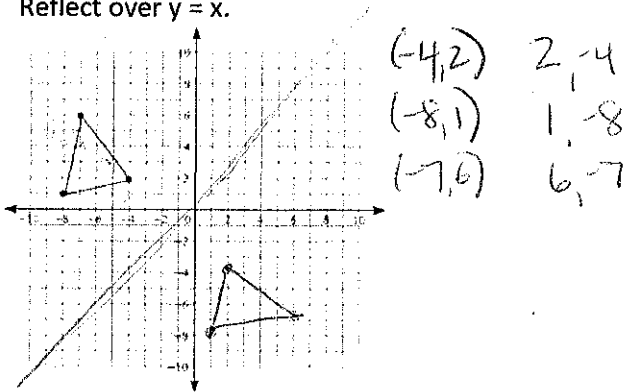
3. Reflect over the x-axis.

- A. $(2, -6)$ (2, 6) B. $(0, -5)$ (0, 5) C. $(-4, 3)$ (-4, -3) D. $(6, 0)$ (6, 0)

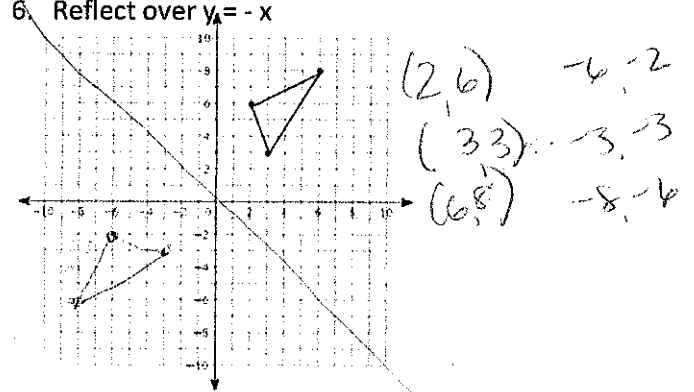
4. Reflect over the y-axis.

- A. $(4, 6)$ (-4, 6) B. $(-2, -3)$ (2, -3) C. $(0, -4)$ (0, 4) D. $(-5, 0)$ (5, 0)

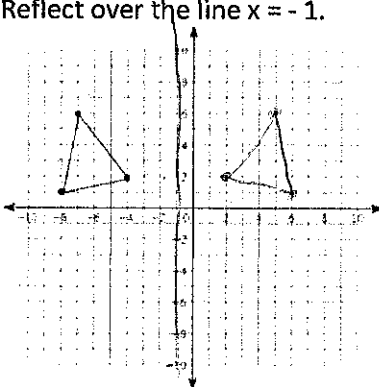
5. Reflect over $y = x$.



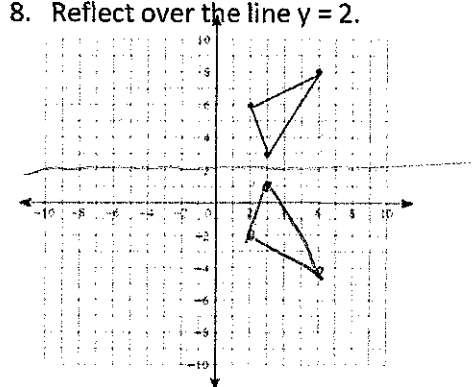
6. Reflect over $y = -x$.



7. Reflect over the line $x = -1$.



8. Reflect over the line $y = 2$.



9. Rotate 90° clockwise. α

- A. (2, 3) (3, -2) B. (2, -8) (-8, 2) C. (-3, 5) (5, 3) D. (-2, -1) (-1, 2)

10. Rotate 180°.

- A. (4, 7) (-4, -7) B. (1, -5) (-1, 5) C. (-4, -2) (4, 2) D. (-5, -2) (5, 2)

11. Rotate 270° clockwise. $90^\circ \text{ clockwise}$

- A. (3, 9) (9, 3) B. (3, -2) (2, 3) C. (-2, -6) (6, -2) D. (-3, -10) (10, -3)

12. Describe the transformation.

- A. $(x, y) \rightarrow (-y, x)$ rotate 90° CCW C. $(x, y) \rightarrow (2x, 2y)$ dilate by 2
 B. $(x, y) \rightarrow (y, x)$ reflect over $y=x$ D. $(x, y) \rightarrow (y, -x)$ rotate 90° CW

13. Describe the transformation.

- A. $(x, y) \rightarrow (x, -y)$ reflect over x-axis B. $(x, y) \rightarrow (-x, -y)$ reflect over $y=-x$
 C. $(x, y) \rightarrow (\frac{1}{3}x, \frac{1}{3}y)$ dilate by $\frac{1}{3}$ D. $(x, y) \rightarrow (-x, y)$ reflect over y-axis
 E. $(x, y) \rightarrow (-x, y)$ reflect over y-axis

14. Which transformation(s) result in congruent figures?

translate, reflect, rotate

15. Which transformation(s) result in similar figures?

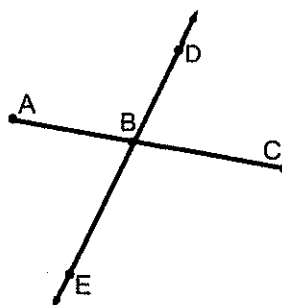
dilations

16. Describe the result.

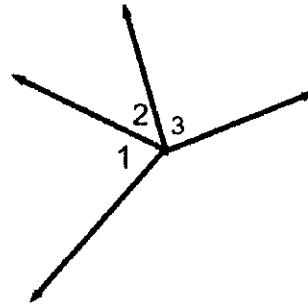
- a. $(x, y) \rightarrow (2x, y)$ horizontal stretch c. $(x, y) \rightarrow (x, 4y)$ vertical stretch
 b. $(x, y) \rightarrow (\frac{1}{2}x, y)$ horizontal shrink d. $(x, y) \rightarrow (x, \frac{1}{2}y)$ vertical shrink

17. Give an example of each.

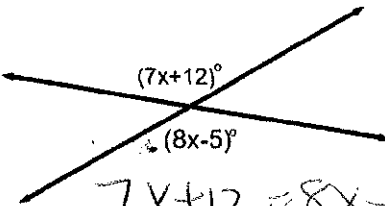
- a. Line \overleftrightarrow{DE} d. ray \overrightarrow{BD}
 b. Line segment \overline{AC} e. acute angle $\angle ABC$
 c. Straight angle $\angle EBD$

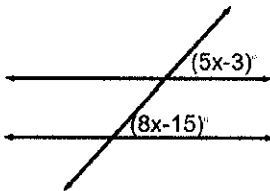


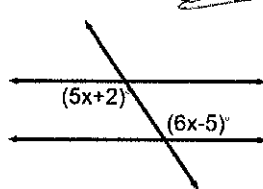
18. Name a pair of adjacent angles. $\angle 1$ and $\angle 2$
 $\angle 2$ and $\angle 3$

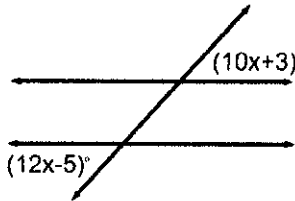


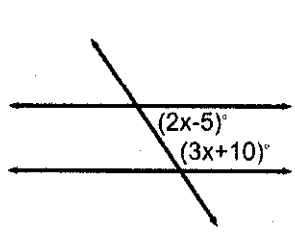
Find the value of x.

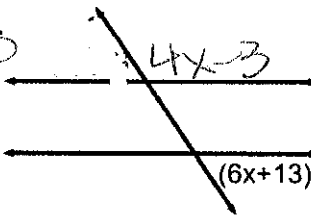
19. 
 $7x+12 = 8x-5$
 $17 = x$

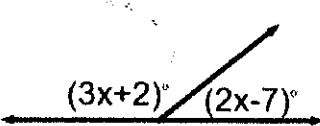
20. 
 $8x-15 = 5x-3$
 $3x = 12$
 $x = 4$

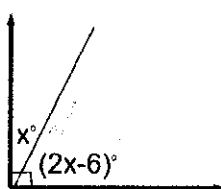
21. 
 $5x+2 = 6x-5$
 $7 = x$

22. 
 $12x-5 = 10x+3$
 $2x = 8$
 $x = 4$

23. 
 $2x-5 + 3x+10 = 180$
 $5x = 175$
 $x = 35$

~~24.~~ 
 $4x-3 + 6x+13 = 180$
 $10x = 170$
 $x = 17$

25. 
 $3x+2 + 2x-7 = 180$
 $5x = 185$
 $x = 37$

26. 
 $x + 2x - 6 = 90$
 $3x = 96$
 $x = 32$

27. Two angles are supplementary. The measure of one angle is three less than twice the measure of the other angle. Find each angle.

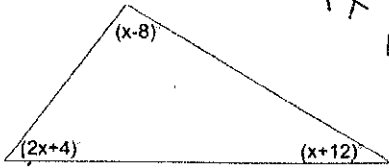
$\angle 1 = x$
 $\angle 2 = 2x - 3$

$x + 2x - 3 = 180$
 $3x = 183$
 $x = 61$

$61^\circ, 119^\circ$

Find the value of x.

28.

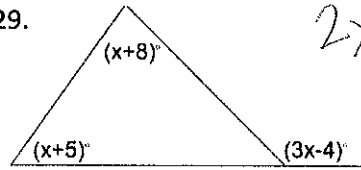


$$4x + 8 = 180$$

$$4x = 172$$

$$x = 43$$

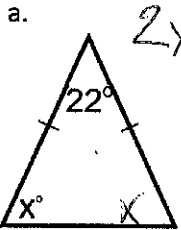
29.



$$2x + 13 = 3x - 4$$

$$17 = x$$

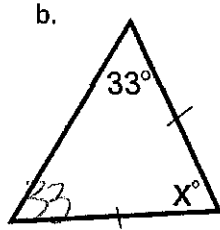
30. Solve for x.



$$2x + 22 = 180$$

$$2x = 158$$

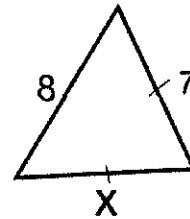
$$x = 79$$



$$x + 66 = 180$$

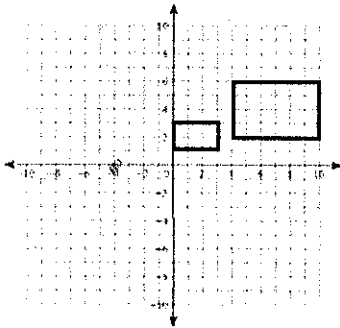
$$x = 114$$

31. Solve for x.



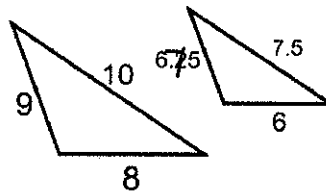
$$x = 7$$

32. Find the center of dilation.



(-4, 0)

33. Are the figures similar?

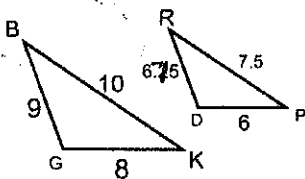


$$\frac{9}{6.75} = \frac{10}{7.5} = \frac{8}{6}$$

$$\frac{4}{3} = \frac{4}{3} = \frac{4}{3}$$

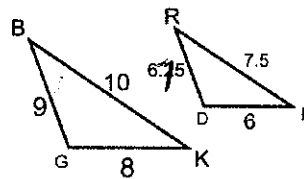
yes

34. What is the scale factor from $\triangle BGK \rightarrow \triangle RDP$?



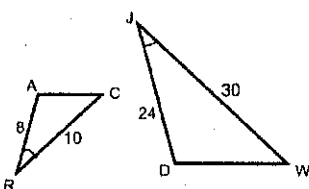
$$\frac{3}{4}$$

35. What is the similarity ratio $\triangle BGK \rightarrow \triangle RDP$?



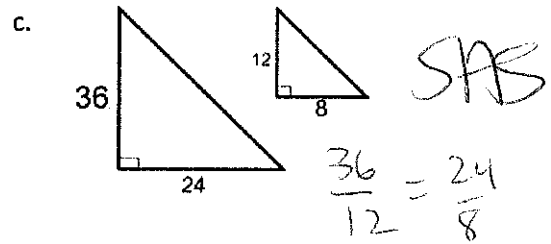
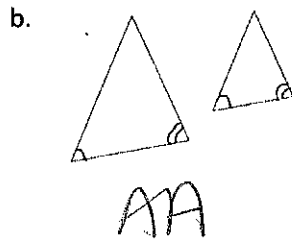
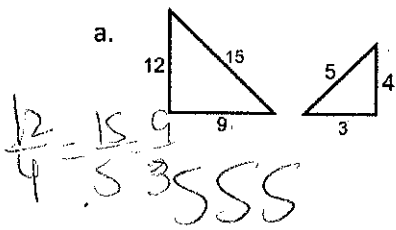
$$\frac{4}{3}$$

36. Write a similarity statement for the triangles.

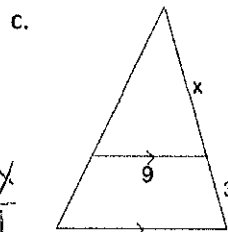
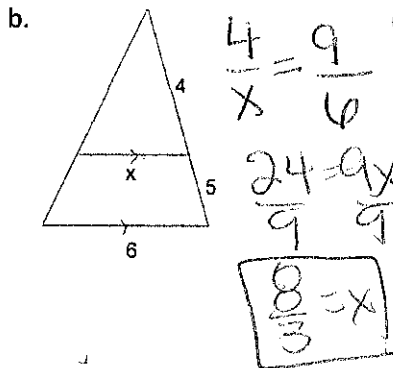
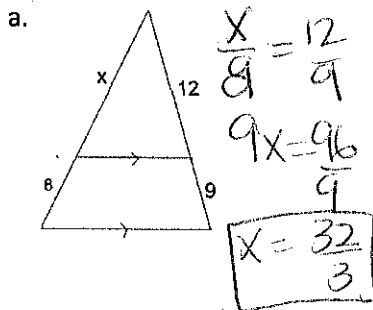


$$\triangle ARC \sim \triangle DJW$$

37. What is the reason for each pair of similar triangles?



38. Solve for x.



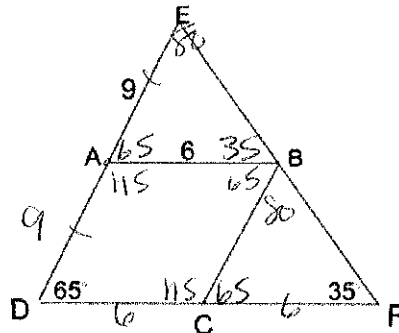
39. A, B, and C are midpoints.

a. What is the name of \overline{AB} ? Midsegment

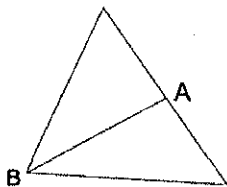
b. Solve for each of the following.

AD 9 ED 18 DF 12
 CF 6 BC 9 CD 6

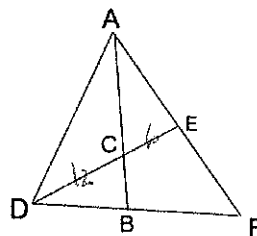
$m\angle EBA$ 35 $m\angle BCD$ 115 $m\angle BCF$ 65 $m\angle DAB$ 115
 $m\angle ABC$ 65 $m\angle E$ 80 $m\angle EAB$ 65 $m\angle CBF$ 80



40. If A is midpoint, what is \overline{AB} called? Median



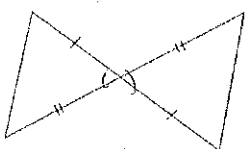
41. B and E are midpoints. $6+12$
 If $EC=6$, $DC=$ 12 and $DE=$ 18.
 If $AB=21$, $AC=$ 14 and $BC=$ 7.
 $\frac{21}{3} = 7$ $7 \cdot 2 = 14$

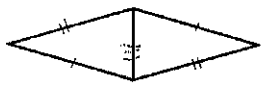


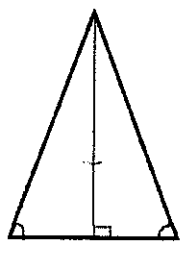
42. How do you know triangles are congruent?

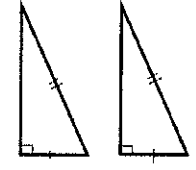
*all corresponding ^{pairs of} angles are congruent
all pairs of corresponding sides are congruent*

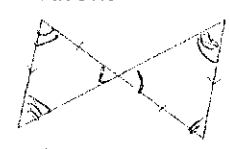
43. What is the reason for each pair of congruent triangles?

a.  SAS

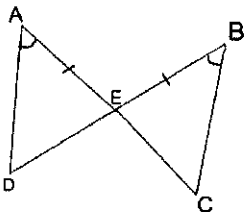
b.  SSS

c.  AAAS

d.  HL

e. 2 reasons  ASA
AAS

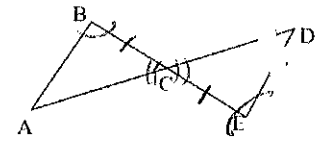
44. Write a congruence statement.

 $\triangle AED \cong \triangle BEC$

45. Complete the proof.

Given: C is the midpoint of \overline{BE} and $\angle B \cong \angle E$

Prove: $\triangle ABC \cong \triangle DEC$

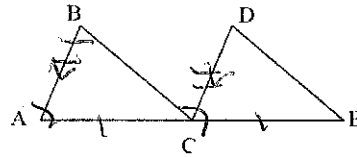


Statements	Reasons
1. C is the midpoint of \overline{BE} .	1. GIVEN
2. $\overline{BC} \cong \overline{EC}$	2. def of midpoint
3. $\angle B \cong \angle E$	3. GIVEN
4. $\angle BCA \cong \angle ECD$	4. vertical angles are congruent
5. $\triangle ABC \cong \triangle DEC$	5. ASA

46. Complete the proof.

Given: C is the midpoint of \overline{AE} ; $\overline{AB} \parallel \overline{CD}$; $\overline{AB} \cong \overline{CD}$

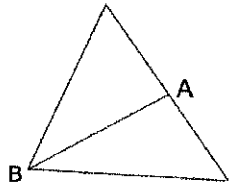
Prove: $\angle B \cong \angle D$



Statements	Reasons
1. C is the midpoint of \overline{AE}	1. Given
2. $\overline{AC} \cong \overline{CE}$	2. def of midpoint
3. $\overline{AB} \parallel \overline{CD}$	3. Given
4. $\overline{AB} \cong \overline{CD}$	4. Given
5. $\angle BAC \cong \angle DEC$	5. Corresponding angles are congruent
6. $\triangle BAC \cong \triangle DCE$	6. SAS
7. $\angle B \cong \angle D$	7. CPCTC

47. Why is $\overline{AB} \cong \overline{AB}$?

reflexive property



48. What are the 10 most common reasons in triangle proofs?

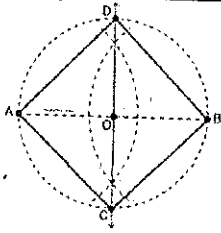
1. one of the triangle congruence reasons, HL, ASA, AAS, SSS, SAS
2. reflexive property
3. alternate interior angles are congruent
4. vertical angles are congruent
5. def of midpoint / def of bisector
6. corresponding angles are congruent
7. def of perpendicular bisector
8. def of right triangle / def of right angle
9. 3rd angle congruence theorem
10. CPCTC

49. What are the 2 tools used in geometric constructions?

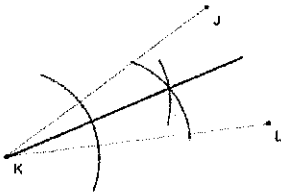
straight edge and compass

Identify the constructions. (#50-59 mixed up)

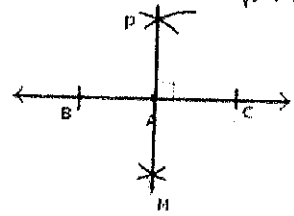
50. inscribed square



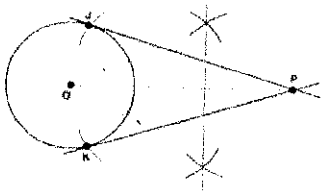
51. angle bisector



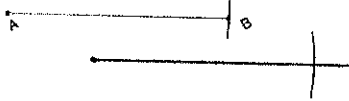
52. perpendicular bisector



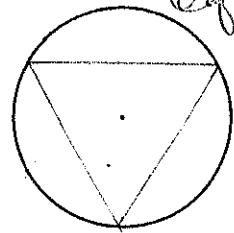
53. tangent to a circle



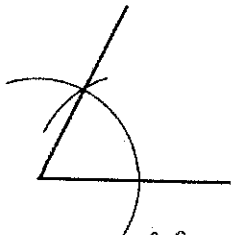
54. copy segment



55. inscribed equilateral triangle



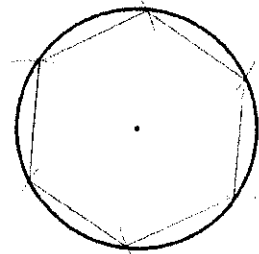
56. Copy angle



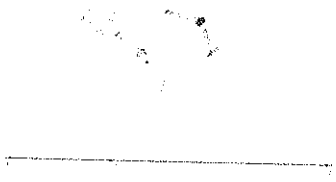
57. Segment bisector



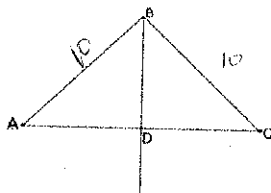
58. inscribed hexagon



59. parallel line

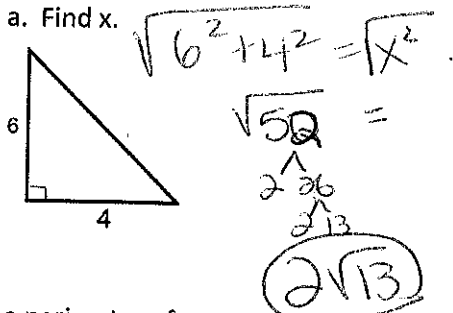


60. \overline{BD} is the perpendicular bisector of \overline{AC} . If $AB=10$, what is BC ? 10

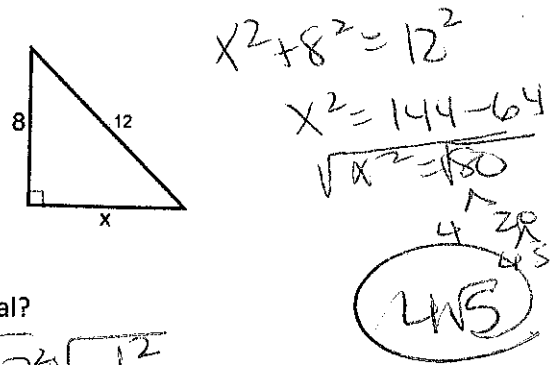


61. Write each answer in simplest radical form.

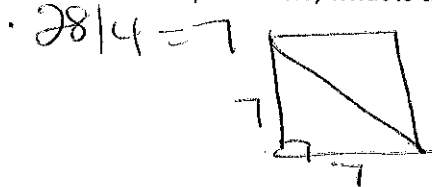
a. Find x.



b. Find x.

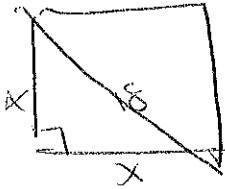


62. If the perimeter of a square is 28, what is the length of the diagonal?



$\sqrt{7^2 + 7^2} = d$
 $d = 7\sqrt{2}$

63. If the diagonal of a square is 18, what is the length of one side?

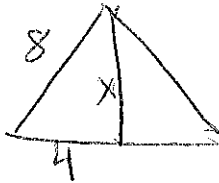


$x^2 + x^2 = 18^2$
 $2x^2 = 324$
 $\sqrt{x^2} = \sqrt{162}$
 $2 \cdot 81$

$9\sqrt{2}$

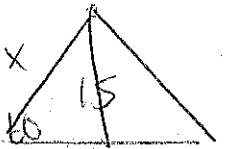
64. If the perimeter of an equilateral triangle is 24, what is the length of the altitude?

$24 / 3 = 8$



$4^2 + x^2 = 8^2$
 $x = 4\sqrt{3}$

65. If the altitude of an equilateral triangle is 15, what is the length of each side?



$\sin 60 = \frac{15}{x}$ $x = \frac{15}{\sin 60}$

66. Find $\sin A$

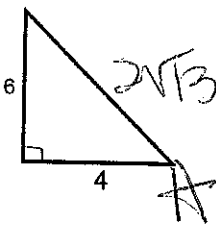
$\frac{3\sqrt{13}}{13}$

Find $\cos A$

$\frac{2\sqrt{13}}{13}$

Find $\tan A$

$\frac{3}{2}$



c. If $\sin A = \frac{5}{13}$, find $\cos A$

$\cos A = \frac{12}{13}$

d. If $\tan A = \frac{9}{40}$, find $\sin A$

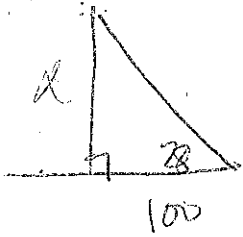
$\sin A = \frac{9}{41}$

67. Complete each statement.

a. $\sin 32 = \cos$ 58
 $90 - 32$

b. If $\sin \theta = \frac{4}{5}$, find $\cos(90 - \theta)$ 4

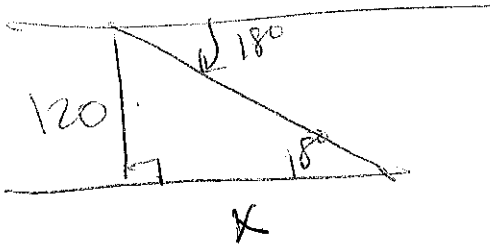
68. The angle of elevation to the top of a building is 28° . If a person is standing 100 feet from the base of the building, how tall is the building?



$$\tan 28 = \frac{x}{100}$$

$$x = 53.2 \text{ feet}$$

69. The angle of depression from a person on top of a building to a car across the street is 18° . If the building is 120 feet tall, how far from the building is the car?

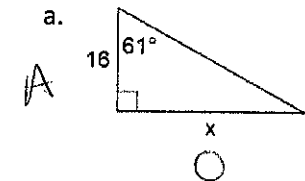


$$\tan 18 = \frac{120}{x}$$

$$x = \frac{120}{\tan 18}$$

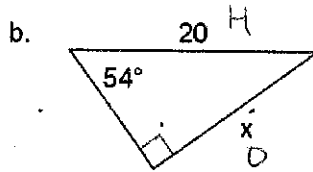
$$x = 369.3 \text{ feet}$$

70. Solve for x.



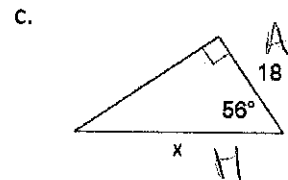
$$\tan 61 = \frac{x}{16}$$

$$x = 28.9$$



$$\sin 54 = \frac{x}{20}$$

$$x = 16.2$$

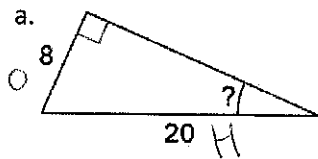


$$\cos 56 = \frac{18}{x}$$

$$x = \frac{18}{\cos 56}$$

$$x = 32.2$$

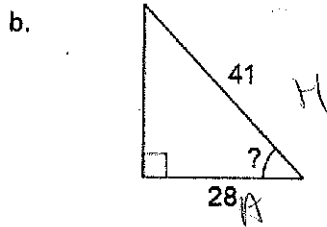
71. Solve for x.



$$\sin x = \frac{8}{20}$$

$$x = \sin^{-1}\left(\frac{8}{20}\right)$$

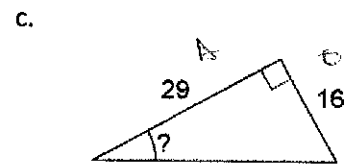
$$x = 23.6^\circ$$



$$\cos x = \frac{28}{41}$$

$$x = \cos^{-1}\left(\frac{28}{41}\right)$$

$$x = 46.9^\circ$$



$$\tan x = \frac{16}{29}$$

$$x = \tan^{-1}\left(\frac{16}{29}\right)$$

$$x = 28.9^\circ$$