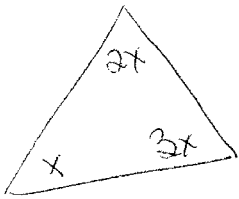


5. The measure of the angles of a triangle are in a ratio of 1:2:3. Find the measure of each angle.



$$x + 2x + 3x = 180$$

$$6x = 180$$

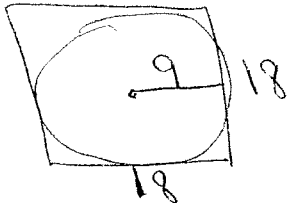
$$x = 30$$

$$x = 30^\circ$$

$$2x = 60^\circ$$

$$3x = 90^\circ$$

6. Determine the area in square feet, of the smallest square that can contain a circle with radius 9 feet.



$$A = s^2$$

$$= 18^2$$

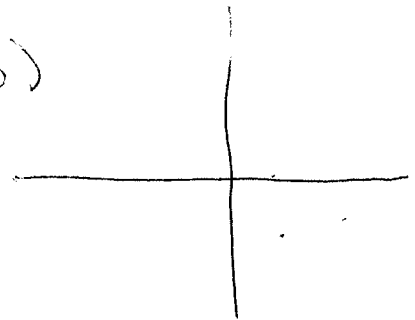
$$= 324 \text{ ft}^2$$

7. M is the midpoint of AB. If the coordinates of A are (2,-4) and the coordinates of M are (6,-2), what are the coordinates of B?

coordinates of M are

| | | | |
|---|----|----|----|
| X | 2 | 6 | 10 |
| | -4 | | 0 |
| Y | -4 | -2 | 0 |
| | -2 | | 0 |

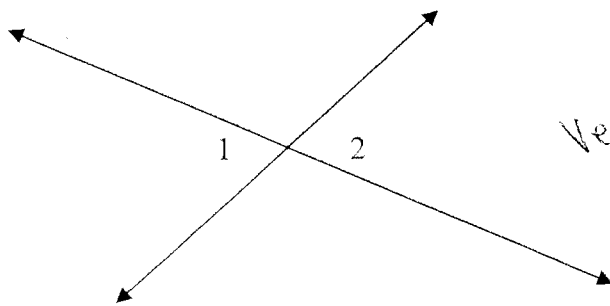
(10, 0)



8. What property is illustrated by $\overline{AB} \cong \overline{AB}$?

reflexive

9. What kind of angles are $\angle 1$ and $\angle 2$?



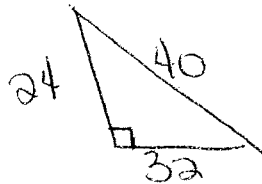
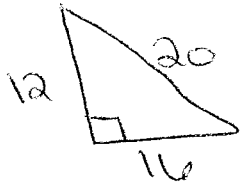
vertical angles

10. Use inductive reasoning to find the next two terms of each sequence. Describe the pattern.

1, 1, 2, 3, 5, 8, 13, 21, 34

Name:

1. The sides of a right triangle are 12, 16, and 20. What is the perimeter of a similar triangle whose largest side is 40?



$$P = 24 + 32 + 40 \\ = 96$$

2. If the lengths of two sides of a triangle are 5 and 12, what could be the lengths of the third side?

- a. 7
~~b. 11~~
c. 17
d. 20

$x = 3^{\text{rd}}$ side

$$5 + 12 > x$$

$$17 > x$$

$$x < 17$$

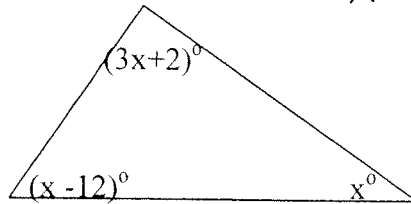
$$5 + x > 12$$

$$x > 7$$

3. What is the measure of the largest angle in the accompanying triangle?

~~a. 110~~

- b. 26
c. 50
d. 38



$$x + x - 12 + 3x + 2 = 180$$

$$5x - 10 = 180$$

$$5x = 190$$

$$x = 38$$

$$3x + 2 = 116$$

4. Which property of real numbers is illustrated by the equation $5 + 0 = 5$?

a. additive identity

- b. commutative property of addition
c. associative property of addition
d. additive inverse

5. If $-3 + mx + b = 1$, solve for x .

$$-3 + mx + b = 1$$

$$mx + b = 4$$

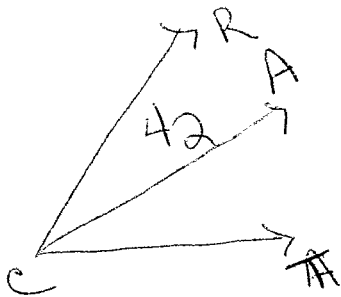
$$mx = 4 - b$$

$$x = \frac{4 - b}{m}$$

6. Given two parallel lines cut by a transversal, which of the following pairs of angles are congruent?

- a. adjacent angles
- b. alternate interior angles
- c. consecutive interior angles
- d. exterior angles on the same side of the transversal

7. If AC bisects angle RCT and angle RCA measures 42 degrees, what is the measure of angle RCT?

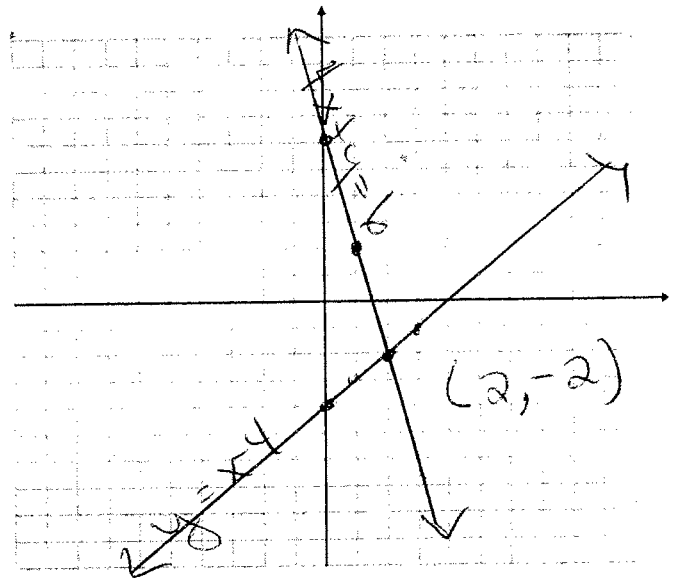


~~81~~

8. Solve the system of equations:

$$\begin{aligned} y &= x - 4 \\ 4x + y &= 6 \end{aligned}$$

$$\begin{aligned} 4x + y &= 6 \\ y &= -4x + 6 \end{aligned}$$



9. Write the name of each property

a. $\overline{AB} = \overline{AB}$

reflexive

b. If $a = b$ and $b = c$, then $a = c$

transitive

10. Find the distance between A(4, -3) and B(6, 2)

$$\begin{aligned} D &= \sqrt{(6-4)^2 + (2-(-3))^2} \\ &= \sqrt{2^2 + 5^2} \\ &= \sqrt{4 + 25} \\ &= \sqrt{29} \end{aligned}$$

$$D = \sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2}$$

11. Find the distance between the coordinates (5, -3) and (-7, 5).

$$\begin{aligned}
 D &= \sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2} \\
 &= \sqrt{(5 - (-7))^2 + (-3 - 5)^2} \\
 &= \sqrt{12^2 + (-8)^2} \\
 &= \sqrt{144 + 64} \\
 &= \sqrt{208} \\
 &= \sqrt{16 \cdot 13} \\
 &= 4\sqrt{13} = (14.4)
 \end{aligned}$$

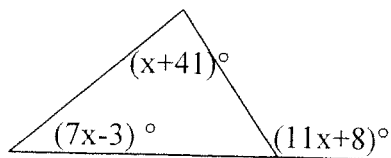
12. Find the slope between the two points: A(-2, -6) B(4, 2)

$$\begin{aligned}
 m &= \frac{y_2 - y_1}{x_2 - x_1} \\
 &= \frac{2 - (-6)}{4 - (-2)} = \frac{8}{6} = \frac{4}{3}
 \end{aligned}$$

13. Can a triangle have sides with length 2, 5 and 9? Explain your answer

no $2 + 5 < 9$

14. Find the measure of each angle.



$$7x - 3 + x + 41 = 11x + 8$$

$$\begin{aligned}
 8x + 38 &= 11x + 8 \\
 -8x & \quad -8x
 \end{aligned}$$

$$38 = 3x + 8$$

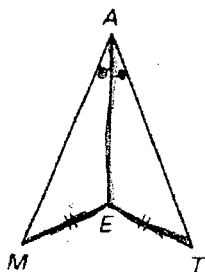
$$30 = 3x$$

$$10 = x$$

| | | |
|-------------|------------|-------------------|
| $7x + 3$ | $x + 41$ | $11x + 8$ |
| $7(10) + 3$ | $10 + 41$ | $11 \cdot 10 + 8$ |
| 67° | 51° | 118° |

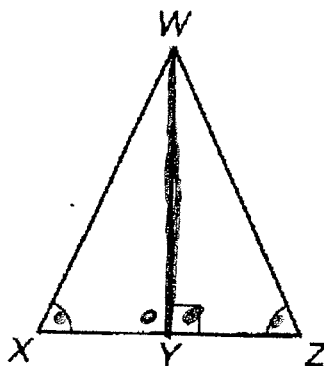
15. Are the triangles congruent? If so, state the rule.

a.



No

b.



AA S

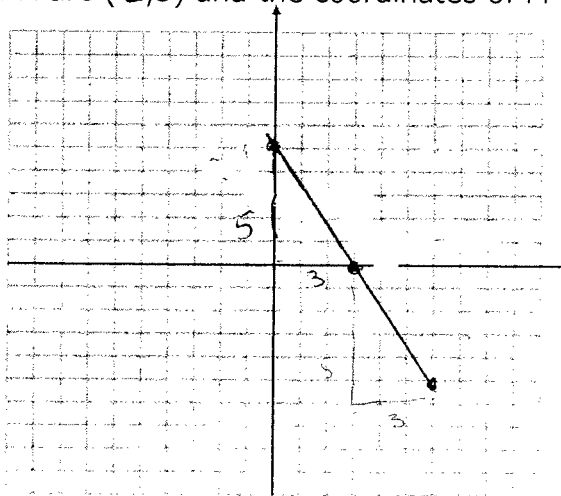
Name:

1. If two parallel lines are cut by a transversal, name three types of angles that are congruent.

corresponding angles
alternate interior angles
alternate exterior angles
vertical angles

2. M is the midpoint of AB. If the coordinates of A are (0,5) and the coordinates of M are (3,0), what are the coordinates of B?

(6, -5)



3. Find the midpoint between (2, 1) and (1, 5)

$$M = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$$
$$= \left(\frac{2+1}{2}, \frac{1+5}{2} \right)$$
$$= \left(\frac{3}{2}, \frac{6}{2} \right) = \left(\frac{3}{2}, 3 \right)$$

4. Find the equation of the line that passes through the points (-1, 9) and (1, 5).

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{5 - 9}{1 - (-1)} = \frac{-4}{2} = -2$$
$$y = mx + b$$
$$5 = -2(1) + b$$
$$7 = b$$
$$y = -2x + 7$$

5. Decide if the statement is True or False

a. When two planes intersect, two lines are formed at their intersection.

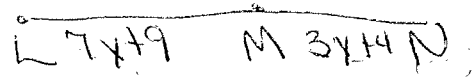
false

b. If two points lie in a plane, the line joining them also lies in the same plane

true

6. Suppose M is between L and N. Use the Segment Addition Postulate to solve for the variable.

Then find the lengths of \overline{LM} , \overline{MN} , \overline{LN}



$$LM = 7y + 9$$

$$MN = 3y + 4$$

$$LN = 143$$

$$7y + 9 + 3y + 4 = 143$$

$$10y + 13 = 143$$

$$10y = 130$$

$$y = 13$$

$$\overline{LM} = 7y + 9$$

$$= 7 \cdot 13 + 9$$

$$= 91 + 9$$

$$= 100$$

$$\overline{MN} = 3y + 4$$

$$= 3(13) + 4$$

$$= 39 + 4$$

$$= 43$$

7. Solve the system of equation by a method of your choice. Check your answer.

$$3x + 2y = -30$$

$$x = -4y$$

$$3x + 2y = -30$$

$$x = -4y$$

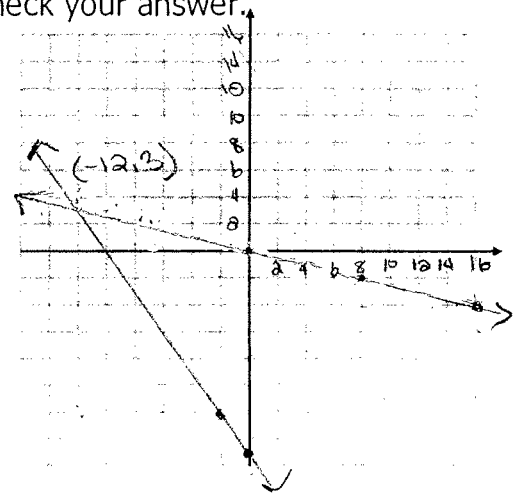
$$2y = -3x - 30$$

$$-\frac{1}{4}x = y$$

$$y = -\frac{3}{2}x - 15$$

$$-\frac{1}{4}x + 0$$

$$(-12, 3)$$



8. Write the property used.

a. If $3x = 6$, then $x = 3$

Division Prop of Eq

b. If $\overline{AB} = \overline{CD}$, then $\overline{CD} = \overline{AB}$

Symmetric Prop.

9. Solve for x:

$$x(x + 3) = 40$$

$$x^2 + 3x = 40$$

$$x^2 + 3x - 40 = 0$$

$$(x + 8)(x - 5) = 0$$

$$x = -8 \quad x = 5$$

10. Write the equation of the line that passes through the point (3, 0) with slope $\frac{1}{2}$

$$y = mx + b$$

$$0 = \frac{1}{2}(3) + b$$

$$0 = \frac{3}{2} + b$$

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

$$y = \frac{1}{2}x - \frac{3}{2}$$

11. Write the equation of the line that passes through the points (3, 4) and (5, -2)

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$= \frac{-2 - 4}{5 - 3} = \frac{-6}{2} = -3$$

$$y = mx + b$$

$$4 = -3(3) + b$$

$$4 = -9 + b$$

$$13 = b$$

$$y = -3x + 13$$

12. Factor completely: $x^2 + 4x - 96$

$$(x + 12)(x - 8)$$

13. Write the equation of the perpendicular bisector of the line segment joining (0, 4) and (2, 3)

$$M = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$$

$$= \left(\frac{0 + 2}{2}, \frac{4 + 3}{2} \right)$$

$$= \left(\frac{2}{2}, \frac{7}{2} \right)$$

$$= (1, \frac{7}{2})$$

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$= \frac{3 - 4}{2 - 0}$$

$$= \frac{-1}{2}$$

$$m_{\perp} = 2$$

$$y = mx + b$$

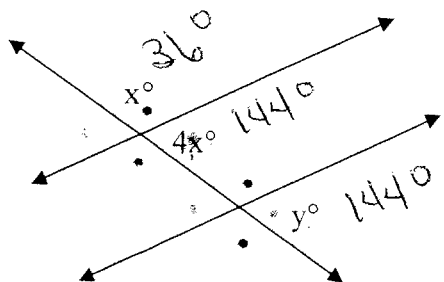
$$\frac{7}{2} = 2(1) + b$$

$$\frac{7}{2} = 2 + b$$

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

$$y = 2x + \frac{3}{2}$$

14. Find the measure of the angles



$$4x + x = 180$$

$$5x = 180$$

$$x = 36$$

$$4x = 144$$

15. Factor completely $4x^3 + 38x^2 + 34x$

$$2x(2x^2 + 19x + 17)$$

$$2x(2x + 17)(x + 1)$$

16. What is the equation of a line perpendicular to $y = 3x + 5$ with the same intercept as $y = 2x - 8$?

$$m = -\frac{1}{3}$$

$$b = -8$$

$$y = -\frac{1}{3}x - 8$$

17. Two complementary angles are in a ratio of 3:5. What is the measure of each angle?

$$3x + 5x = 90$$

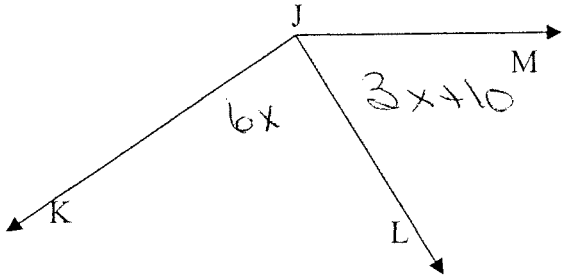
$$8x = 90$$

$$x = 11.25$$

$$3x = 33.75$$

$$5x = 56.25$$

18. IF $m \angle KJM = 145^\circ$, $m \angle KJL = 6x$ and $m \angle LJM = (3x+10)$. Find x



$$6x + 3x + 10 = 145$$

$$9x + 10 = 145$$

$$9x = 135$$

$$x = 15^\circ$$

19. What is the *larger* root of the equation $x^2 + x - 12 = 0$?

$$(x+4)(x-3) = 0$$

$$x = -4 \quad (x = 3)$$

20. Which phrase does *not* describe a triangle?

(1) acute ~~obtuse~~ (2) isosceles right (3) equilateral equiangular (4) obtuse scalene