1. Which is the equation in slope-intercept form of the line that is parallel to $y = \frac{3}{8}x + 7$ and contains (−10, −2)?

   A. $y = \frac{3}{8}x + \frac{7}{4}$

   B. $x = \frac{3}{8}y + \frac{7}{4}$

   C. $y = -\frac{8}{3}x + \frac{7}{4}$

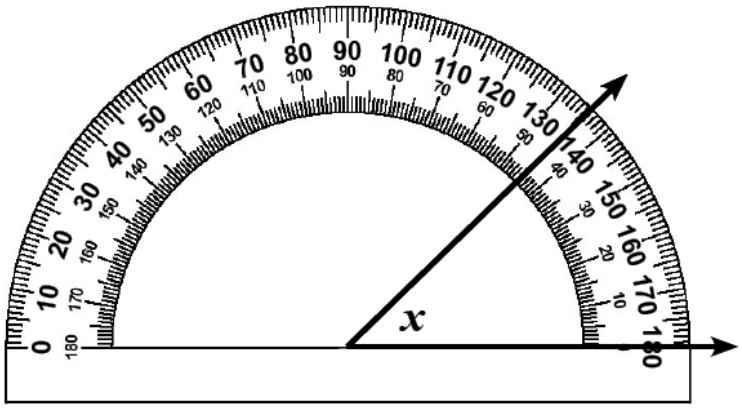
   D. $x = -\frac{8}{3}y + \frac{7}{4}$

2. What is the relationship between lines l_1 and l_2?

   l_1: $y = -x + 8$ l_2: $y - 5 = -(x - 3)$

   A. Parallel
   B. Perpendicular
   C. Same
   D. Skew

3. What is the measure of angle x?



   A. 20 degrees
   B. 45 degrees
   C. 135 degrees
   D. 180 degrees

4. Identify the hypotheses and the conclusion of the statement.

If two distinct lines intersect, then their intersection is a point.

A. H: two distinct lines intersect; C: their intersection is a point
B. H: their intersection is a point; C: two distinct lines intersect
C. H: if two distinct lines intersect; C: then their intersection is a point
D. H: if their intersection is a point; C: then two distinct lines intersect

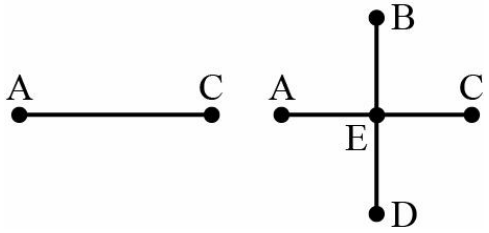
5. Identify the converse of the statement.

If students have good study habits, they have good grades.

A. Students have good study habits.
B. Students have good grades.
C. Students with good study habits have good grades.
D. If students have good grades, then they have good study habits.

6. Fill in the missing information in Step 1.

Given: $\overline{AC}$, construct the perpendicular bisector of $\overline{AC}$.



1. Set your compass equal to a distance __?__
2. Place your compass on point *A* and draw an arc above and below $\overline{AC}$.
3. Without adjusting your compass setting, place the compass point at *C*. Draw a new arc above and below $\overline{AC}$, and label the intersection points of the two arcs *B* and *D*.
4. Use a straightedge to draw $\overleftrightarrow{BD}$. Label the intersection of $\overleftrightarrow{BD}$ and $\overline{AC}$ as point *E*. $\overleftrightarrow{BD}$ is the perpendicular bisector of $\overline{AC}$, and *E* is the midpoint.

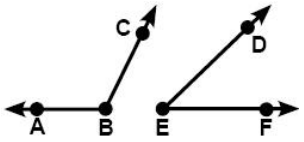
A. exactly the same as $\overline{AC}$.

B. exactly half of $\overline{AC}$.

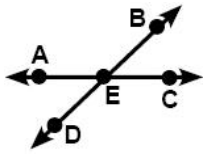
C. less than half of $\overline{AC}$.

D. greater than half of $\overline{AC}$.

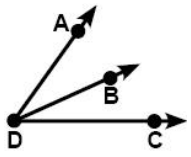
7. Which of the following is a counter-example of the statement "If two angles have a common side, then they are adjacent"?

A. 

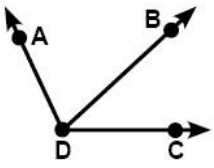
$\angle ABC$ and $\angle DEF$ are not adjacent, and they do not have a common side.

B. 

$\angle AEB$ and $\angle DEC$ are not adjacent, and they do not have a common side.

C. 

$\angle ADC$ and $\angle ADB$ have a common side, and they are <u>not</u> adjacent.

D. 

$\angle ADB$ and $\angle BDC$ are not adjacent, and they have a common side.

8. Joshua studied the data in the table and made the following conjecture:

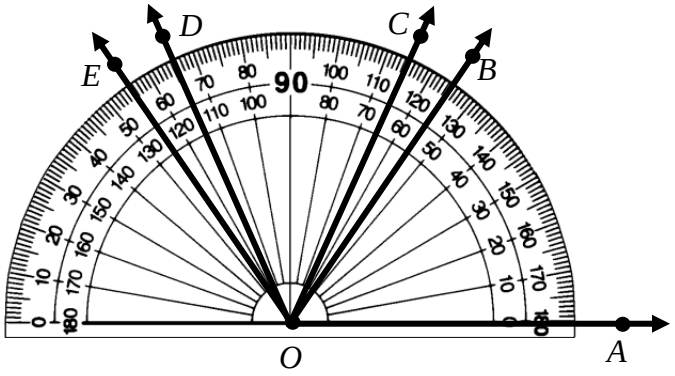
The product of two positive numbers is always greater than both factors.

Factors		*Product*
2	7	14
6	12	72
20	31	620
51	64	3264

Which of the following is a counterexample of Joshua's conjecture?

A. product of –5 and –18
B. product of 0.5 and 10
C. product of 4 and 5
D. product of –7 and 76

9. Sarah needs to cut a decorative piece of wood for the desk she is making. The measure of the angle that needs to be cut is 65°. Which angle is 65°?



A. $m\angle AOB$
B. $m\angle AOC$
C. $m\angle AOD$
D. $m\angle AOE$

10. What is the converse of "If it is raining, then we will not go to the beach?"

A. If it is not raining, then we will go to the beach.
B. If we go to the beach, then it is not raining.
C. If we do not go the beach, then it is raining.
D. We will go to the beach if and only if it is not raining.

11. If $y = -2x + 5$, what is the slope of a line that is perpendicular to it?

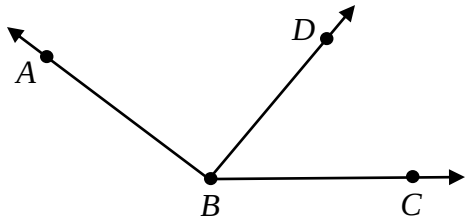
A. -2

B. $\frac{-1}{2}$

C. $\frac{1}{2}$

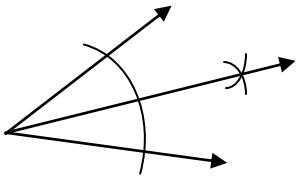
D. 2

12. In the figure below $m\angle ABC = 126^\circ$ and $m\angle DBC = 32^\circ$. What is the measure of $\angle ABD$?



A. 158°
B. 126°
C. 100°
D. 94°

13. The diagram below illustrates a method for constructing a(n) _____.



A. Angle Bisector
B. Copy of an Angle
C. Parallel Lines
D. Perpendicular Lines

14. A rope is used to stake a tent pole as shown. Which could be the measure of an angle that is supplementary to the angle that the rope makes with the ground?

A. 45°
B. 75°
C. 90°
D. 125°

15. Two lines are cut by a transversal. Which of the following angles must be congruent to prove that the two lines are parallel?

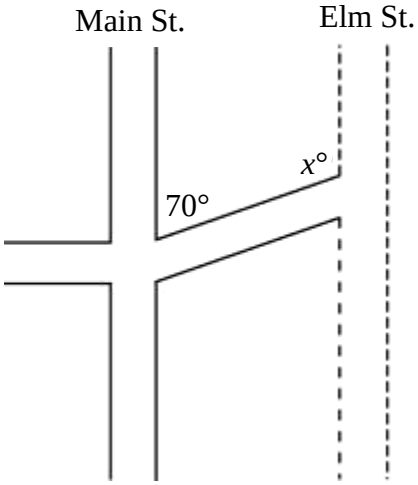
a. Alternate Interior Angles
b. Vertical Angles
c. Corresponding Angles
d. Consecutive Interior Angles
e. Alternate Exterior Angles

A. a, b, c
B. a, c, e
C. b, c, d
D. c, d, e

16. Given a line that goes through points $A(0, 0)$ and $R(2,1)$, what is the equation of the line that goes through the point $P(4, 5)$ and is parallel to $\overleftrightarrow{AR}$?

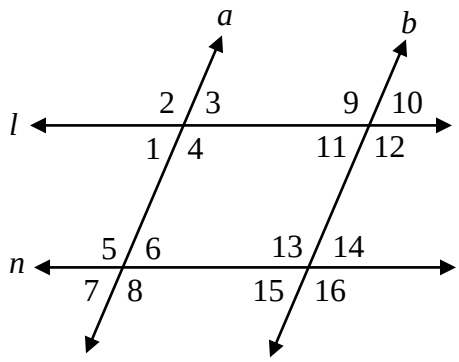
A. $y = \frac{1}{2}x + 3$
B. $y = -2x - 3$
C. $y = -\frac{1}{2}x - 3$
D. $y = 2x + 3$

17. In the figure below, Elm Street is to be constructed parallel to Main Street. What is the value of x?



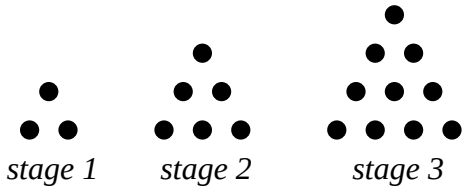
A. 20°
B. 70°
C. 110°
D. 180°

18. In the diagram below, line n is parallel to line l and line a is parallel to line b. If $m\angle 3 = 10x$, and $m\angle 15 = x + 45$, what is the measure of $\angle 11$?



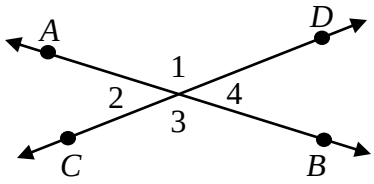
A. 45º
B. 50º
C. 55º
D. 60º

19. If you continued drawing larger triangles following the pattern shown below, how many dots would there be in item 7?



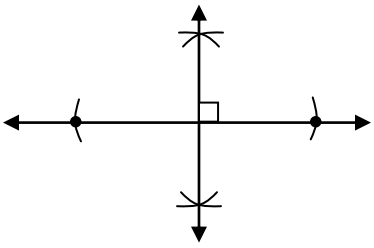
A. 28
B. 36
C. 37
D. 45

20. In the figure below line *AB* intersects line *CD* forming 4 angles. What is the relationship between ∠1 and ∠3?



A. Adjacent Angles
B. Linear Pair
C. Supplementary Angles
D. Vertical Angles

21. The diagram below illustrates a method for constructing a?

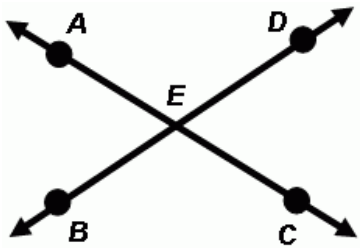


A. Angle Bisector
B. Parallel Lines
C. Perpendicular Lines
D. Segment Bisector

22. Of the 16 people waiting for the subway, 12 have briefcases, 8 have overcoats, and 5 have both briefcases and over coates. The other people have neither. How many people have just a briefcase?

A. 10
B. 7
C. 6
D. 3

23. In the figure shown, $m\angle AED = 137^{\circ}$. Which of the following statements is true?



A. $\angle AEB$ and $\angle BEC$ are complementary

B. $\angle DEC = 43^{\circ}$

C. $\angle BEC = 43^{\circ}$

D. $\angle DEC$ and $\angle BEC$ are vertical angles

24. Which is the slope of a line that is **perpendicular** to the graph of $y = -\frac{3}{4}x + 1\frac{2}{5}$?

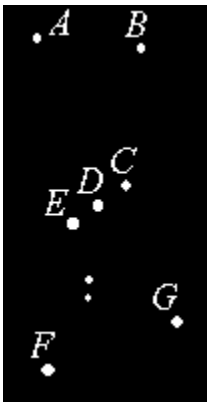
A. $-\frac{4}{3}$

B. $-\frac{3}{4}$

C. $\frac{3}{4}$

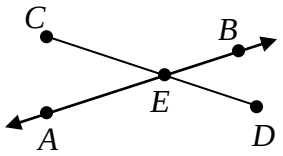
D. $\frac{4}{3}$

25. The diagram shows the constellation of Orion. Name three stars that appear to be collinear.



A. *D*, *E*, *F*
B. *C*, *D*, *E*
C. *A*, *D*, *F*
D. *B*, *C*, *F*

26. Use the figure to name an example of a line.



A. $\overline{CD}$
B. $\overline{AB}$
C. $\overleftrightarrow{CD}$
D. $\overleftrightarrow{AB}$

27. Three segment measures are given. The three points named are collinear. Determine which point is between the other two.

$SM = 72$, $AM = 42$, $SA = 30$

A. *A*
B. *T*
C. *M*
D. S

28. Determine what geometric figure is suggested by the following.

A football field

A. line
B. plane
C. point
D. segment

29. Identify the inverse of the following statement: "If two angles are supplementary, then the sum of their measures is 180 degrees."

A. If two angles are not supplementary, then the sum of their measures is 180 degrees.
B. If two angles are not supplementary, then the sum of their measures is not 180 degrees.
C. If the sum of the measures of two angles is not 180 degrees, then they are not supplementary.
D. If the sum of two angles measures 180 degrees, then the two angles are supplementary.

30. Which of the following is a reasonable conjecture based on the given information?

Given: $m > n$ and $n > 7$

A. $n > m$
B. $m < 7$
C. $m > 7$
D. $m = n$

31. After measuring several pairs of vertical angles, Amy said "If two angles are congruent, then they are vertical angles." What can be said about both the converse and inverse of Amy's statement?

A. The converse and inverse are both true.
B. The converse is true and the inverse is false.
C. The inverse is true and the converse is false.
D. The converse and inverse are both false.

32. Determine which table of values contains coordinate points which are collinear.

A.

x	*y*	**(*x*, *y*)**
1	2	(1, 2)
2	1	(2, 1)
3	4	(3, 4)
4	3	(4, 3)

B.

x	*y*	**(*x*, *y*)**
1	2	(1, 2)
2	4	(2, 4)
3	6	(3, 6)
4	8	(4, 8)

C.

x	*y*	**(*x*, *y*)**
1	2	(1, 2)
−1	2	(−1, 2)
1	−2	(1, −2)
−1	−2	(−1, −2)

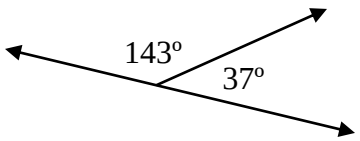
D.

x	*y*	**(*x*, *y*)**
−1	2	(−1, 2)
3	−4	(3, −4)
−5	6	(−5, 6)
7	−8	(7, −8)

33. Which linear equation is parallel to the line $y = \frac{1}{2}x + 3$?

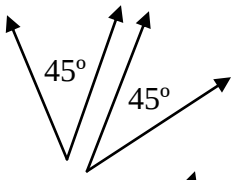
A. $2x + y = 3$
B. $2x - 4y = 10$
C. $x + 2y = 7$
D. $10x - 3y = 3$

34. Which diagram shows two angles that are supplementary and adjacent?

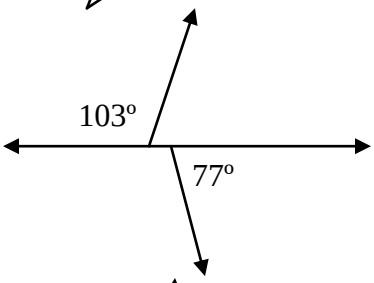


A.

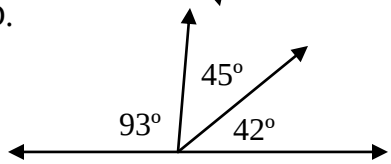
B.



C.



D.



35. $\angle A$ and $\angle T$ are complementary. The measure of $\angle T$ is three times the measure of $\angle A$. What is $m\angle A$?

A. 30º
B. 22.5º
C. 45º
D. 67.5º