[G1.0] **1.** If $\angle 2$ and $\angle 4$ are both supplementary to the same angle, what can you conclude?

A. $\angle 2$ and $\angle 4$ are supplementary to each other.

B. $\angle 2$ and $\angle 4$ are acute angles.

C. $\angle 2$ and $\angle 4$ are right angles.

D. $\angle 2$ and $\angle 4$ are congruent angles.

[G1.0] **2.** Inferring a general truth by examining a number of specific examples is:

A. Law of Syllogism

B. Law of Detachment

C. Deductive Reasoning

D. Inductive Reasoning

[G1.0] **3.** Using logic to draw conclusions based on accepted statements is:

A. Law of Syllogism

B. Law of Detachment

C. Deductive Reasoning

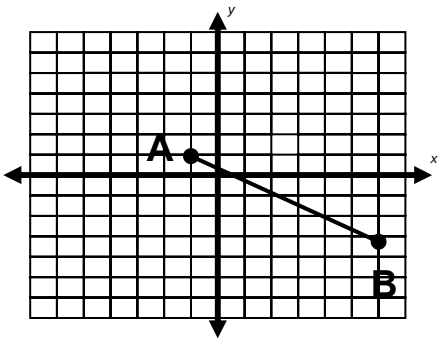
D. Inductive Reasoning

[G17.0] **4.** What is the slope of the line passing through the points (–6, 7) and (1, 5)?

[G1.0] **5.** What is the equation of the line parallel to **y = –2x – 6** passing through the point **(4, –5)**?

[G17] **6.** What is the equation of the line perpendicular to **y = 3x – 7** through the point **(–6, 9)**?

[G17.0] **7.** Using the graph below, what is the midpoint of points A and B?



[G17.0] **8.** Using the graph above, what is the distance (in radical form) between the points A and B?

[G17.0] **9.** If two lines are **perpendicular**, which of the following statements is **true**?

A. slope of l_1 = 1 / slope of l_2

B. (slope of l_1)(slope of l_2) = –1

C. (slope of l_1)(slope of l_2) = 1

D. slope of l_1 = slope of l_2

[G1.0] **10.** "**All polygons have four sides.**"

Which of the following is a *counterexample* to the assertion above?

A. Quadrilateral

B. Rectangle

C. Circle

D. Pentagon

[G1.0] **11.** Let D be between A and B. Use the segment addition postulate to **find BD**.

AD = 4x + 33

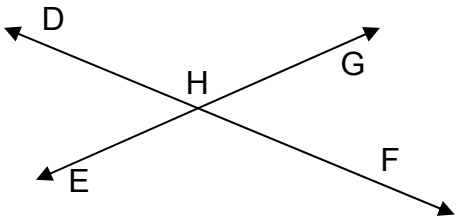
BD = 3x + 35

AB = 40

[G1.0] **12.** m∠GHF = 3x – 7,

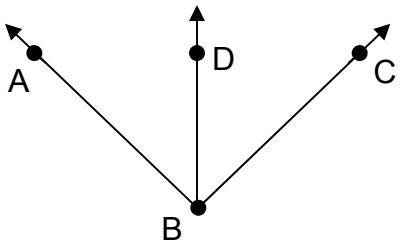
m∠DHE = 63 – 4x.

Find **m∠GHF**.

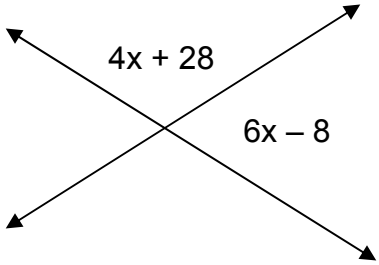


[G1.0] **13.** In the figure (not to scale), $\overrightarrow{BD}$ **bisects** ∠ABC, **m∠ABD = 2x+10,** and **m∠ABC = 120°**.

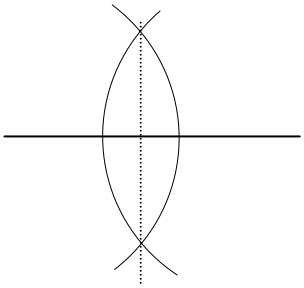
Solve for **x** and find **m∠ABD.**

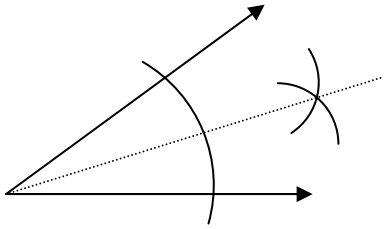


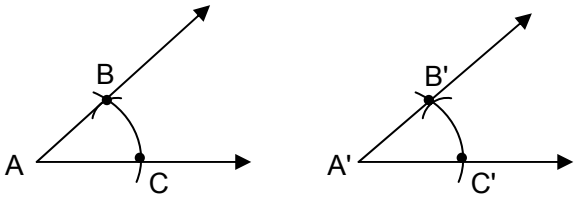
[G1.0] **14.** Solve for x.

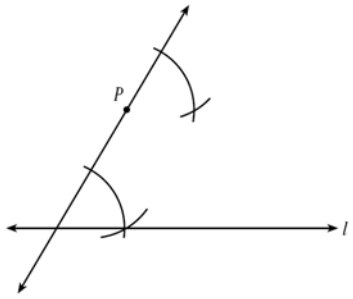


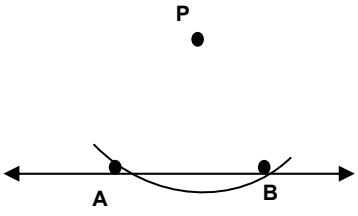
[G16.0] **15.** Identify each of these constructions (or partial constructions)?



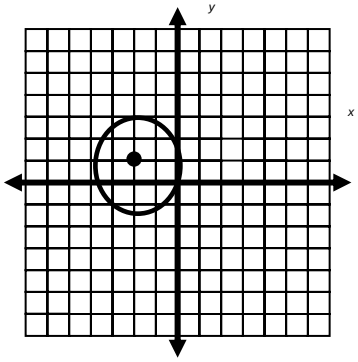








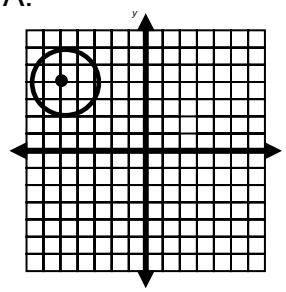
[G17.0] **16.** Given the graph below. What is the equation of the circle?



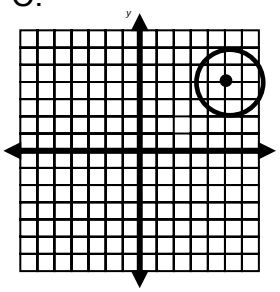
[G17.0] **17.** Which of the following graphs represents the circle with the equation

$$(x - 5)^2 + (y + 4)^2 = 4$$

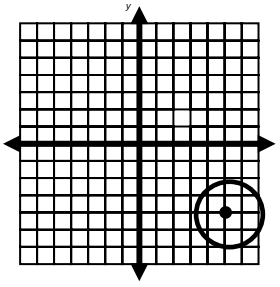
A.



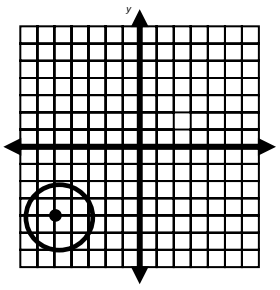
C.



B.



D.



[G22.0] **18.** The vertices of ΔABC are **A(–2, –7), B(–1, 8) and C(7, 2)**. If ΔABC is translated **4 units down and 3 units to the right**, what are the new coordinates of the vertices of ΔA'B'C'?

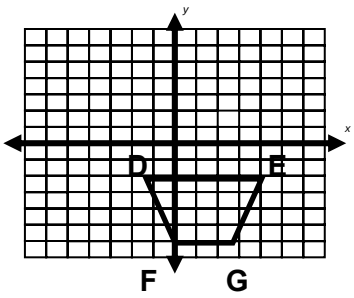
A' =

B' =

C' =

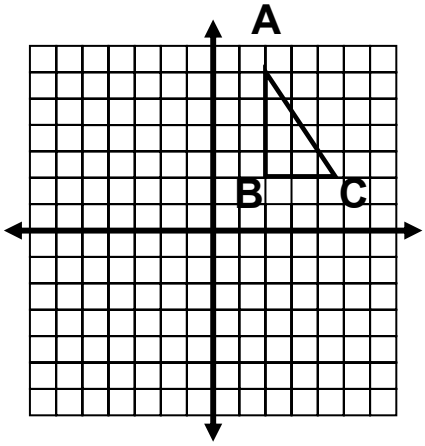
[G22.0] **19.** Trapezoid DEFG is translated to D'E'F'G' using the following motion rule:

(x, y) → (x – 5, y + 9).



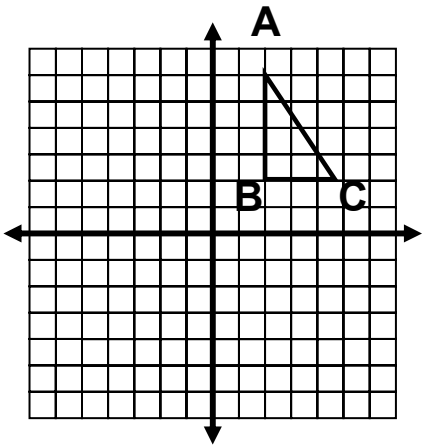
What are the coordinates of vertex **F'**?

[G22.0] **20.** ΔABC is rotated 180° about the origin. What are the new coordinates of A'?

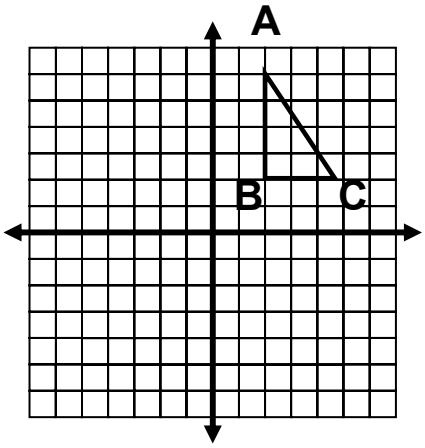


A' =

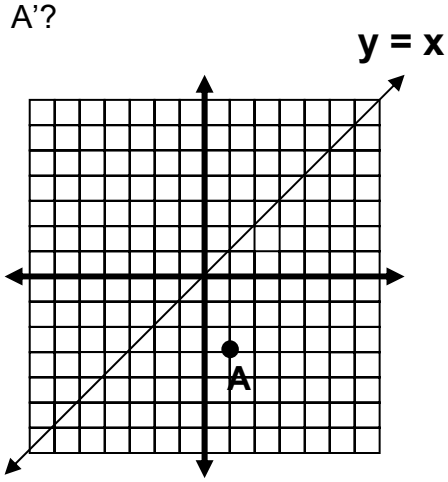
[G22.0] **21.** ΔABC is reflected about the line **y = –2**. What are the new coordinates of C'?



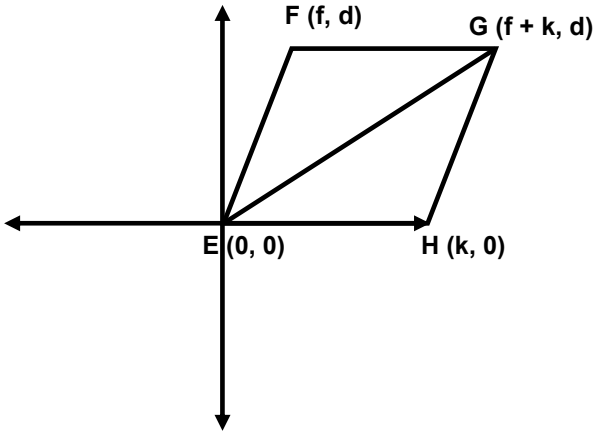
[G22.0] **22.** ΔABC is reflected about the **y-axis**. What are the new coordinates of C'?



[G22.0] **23.** Point A is reflected about the line **y = x**. What are the new coordinates of A'?



[G17.0] **24.** Write the equation that best represents the **midpoint** of line segment EG.



A. $\left(\frac{f}{2}, \frac{d}{2}\right)$

B. $\left(\frac{f+k}{2}, \frac{d}{2}\right)$

C. $\left(\frac{k}{2}, \frac{d}{2}\right)$

D. (f, d)

[G1.0] **25.** Given the conditional statement $p \rightarrow q$, write the notation to represent each of the following statements:

A. Biconditional Statement

B. Contrapositive

C. Converse

D. Inverse

[G1.0] **26.** Given the statements:

"All true mathematicians love pi."

"Mr. Guseman and Mr. Sirimanne are true mathematicians"

A) What can you conclude based upon these two statements?

B) Translate the first statement into a conditional (If – then) statement.

C) What is the converse of your answer to item B?

D) What is the contrapositive of your answer to item B?

[G1.0] **27.** Identify a counterexample to the following statement:

"If two angles are complimentary, then they must form a right angle."

Question #	Answer
1.	D (Congruent)
2.	D (Inductive)
3.	C (Deductive)
4.	m = $-\frac{2}{7}$
5.	y = **–2x + 3**
6.	y = $-\frac{1}{3}$**x + 7**
7.	Mid = $\left(\frac{5}{2}, -1\right)$
8.	D = $\sqrt{65}$
9.	B
10.	D (Pentagon)
11.	BD = **23**
12.	m∠GHF = 23°
13.	x = 25°,m∠ABD = 60°
14.	x = 16
15.	Bisect a segment Bisect an angle Copy an angle Parallel line through a given point Perpendicular line though a given point
16.	$(x + 2)^2 + (y – 1)^2 = 4$
17.	B
18.	A'(1,-11) B'(2,4) C'(10-2)
19.	F'(–5, 3)
20.	A'(–2, –6) Remember. count up / down and left / right to origin and repeat. The signs change for both x and y.
21.	C'(5, –6) Remember, y = –2 is a horizontal line, NOT a vertical line. The opposite is true for reflecting about x = … lines.
22.	C'(–5, 2)
23.	A'(–3, 1) Remember, count diagonally towards the line. The x and y coordinates switch places.
24.	B. Note, just plug variables into the midpoint equation just like you do numbers.
25.	Bicond: $p \leftrightarrow q$ Contrapos: $\sim p \rightarrow \sim q$ Converse: $q \rightarrow p$ Inverse: $\sim p \rightarrow \sim q$
26.	
27.	Any two non-adjacent ∠'s adding to 90°.