

SHOW ALL WORK!! 😊

Points will be awarded as indicated on each question.

- 1) What Quadrant is (x,y) located in if $x < 0$ & $y < 0$?
- a) I
 - b) II
 - c) III
 - d) IV
 - e) it is on one of the axes

For #2,3: If $f(x) = x^3 + 7$

- 2) What type of symmetry does $f(x)$ have?
- a) x-axis
 - b) y-axis
 - c) origin
 - d) none of the above
- 3) The function $f(x)$ is
- a) odd
 - b) even
 - c) neither
 - d) both

For #4,5: If $f(x) = (x+1)^2$

- 4) What type of symmetry does $f(x)$ have?
- a) x-axis
 - b) y-axis
 - c) origin
 - d) none of the above
- 5) The function $f(x)$ is
- a) odd
 - b) even
 - c) neither
 - d) both

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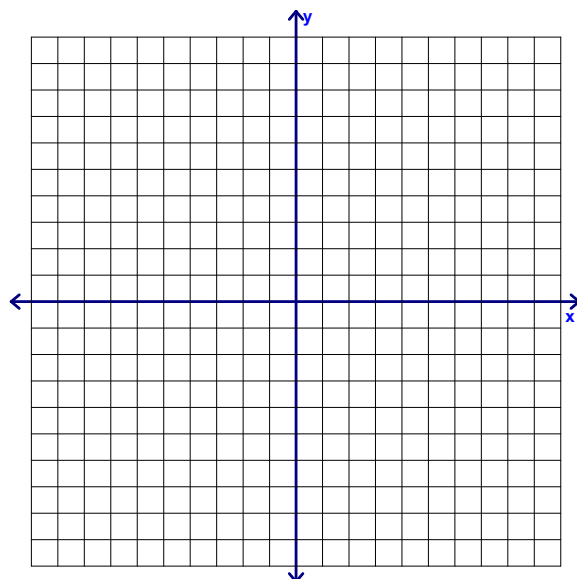
For #6,7: If $f(-2)=10$ and $f(-7)=-4$, then

6) What is the linear function that contains the two values?

7) What is the distance between the two points?

8) Draw a sketch of $g(x)=(x+3)^2-3$.

Be sure to indicate at least three critical points.



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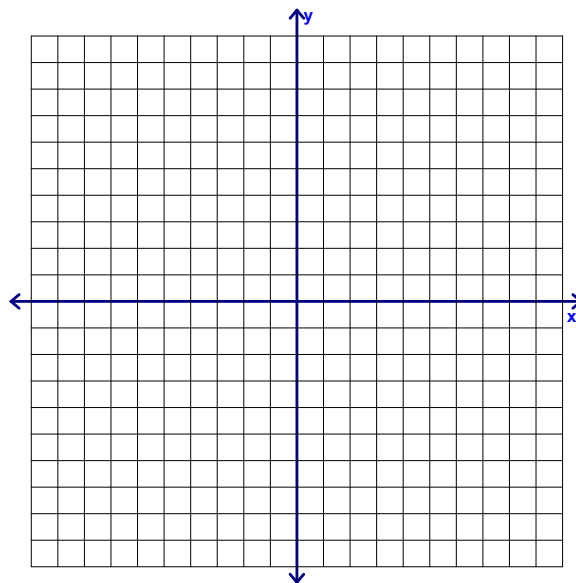
- 9) A circle passes through the point $(0,4)$ and has a center at $(-6,3)$.
What is the equation for the circle?

Use the following relation: $x^2 + (y+4)^2 = 25$

- 10) Graph the relation -----→

- 11) What are the x-intercepts?

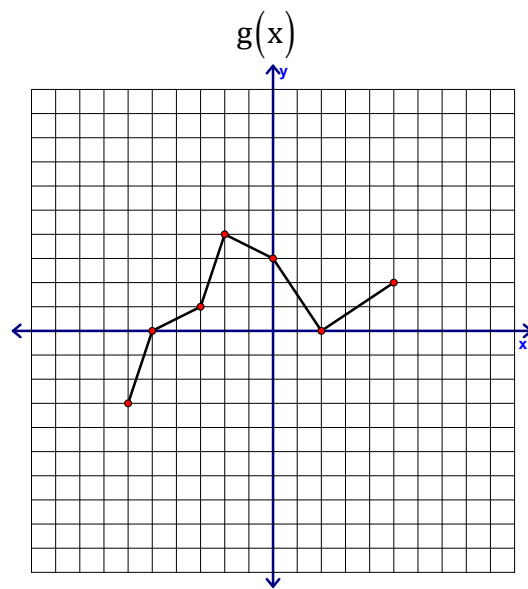
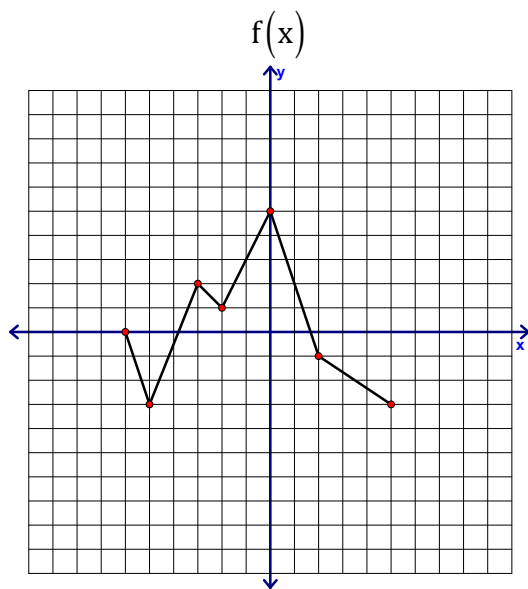
- 12) What are the y-intercepts?



- 13) What are the domain and range of this relation?
(You may use set or interval notation)

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For questions 14 – 17, use the graph of $f(x)$ and $g(x)$ below.



14) Calculate: $g(g(2))$

15) Calculate: $(f+g)(-3)$

16) Calculate: $(g \circ f)(-3)$

17) Calculate: $(g/f)(-2)$

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18) In general, how does the graph of $f(x)$ relate to the graph of $f(-x)$?

- a) Reflect over the x-axis
- b) Reflect over the y-axis
- c) Reflect over the identity line
- d) Reflect over the $y = 1$ line
- e) none of the above

For #19,20: If $g(x) = \frac{1}{4}(x+3)^2 - 4$

19) Find the zero(s) of $g(x)$

20) Describe the transformations in comparison to the parent function $f(x) = x^2$
Be specific!

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- 21) Use the technique of completing the square to transform this circle equation into standard form. Then identify the center and radius:

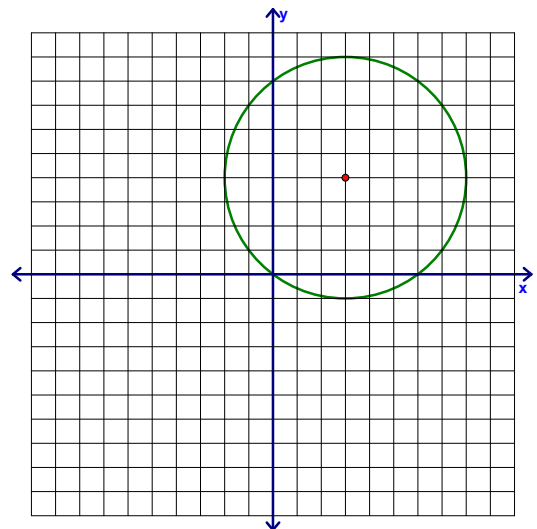
$$x^2 + y^2 + 6y + 9 = 8x$$

Standard form: _____

Center: _____ Radius: _____

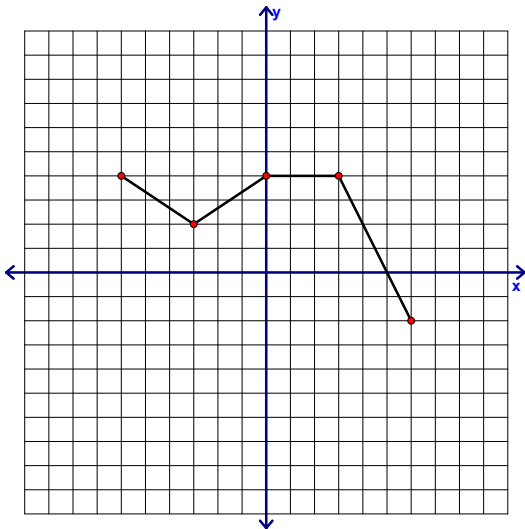
- 22) What is the equation of the circle $(x-3)^2 + (y+2)^2 = 7$ translated 2 left and 4 down?

- 23) Write the equation of the circle shown below:



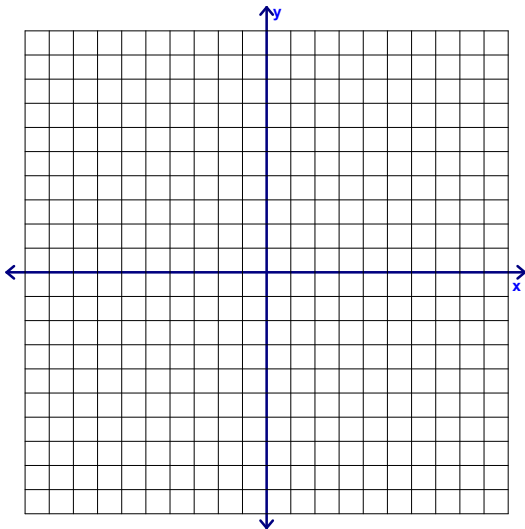
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24) Given the following function, $f(x)$, graph each of the given transformations (hint: write out the words first, then apply the transformation rule (x,y) to the key ordered pairs of the function).

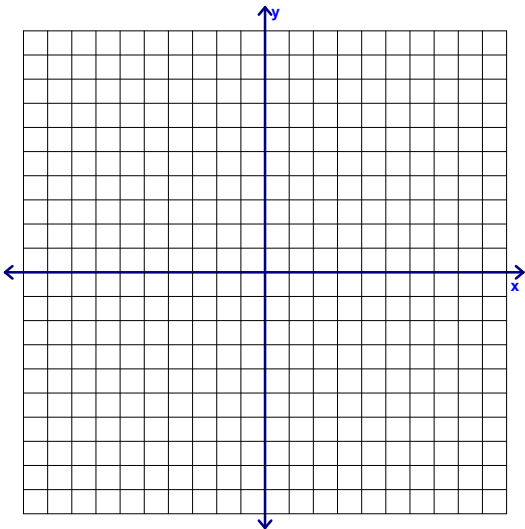


Key Ordered Pairs:

a. $F(x) = f(x) + 2$

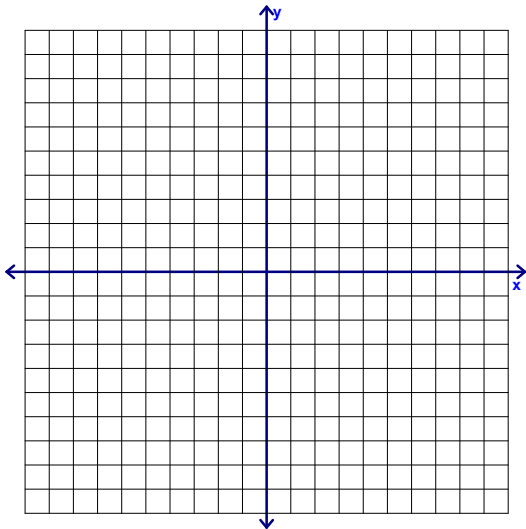


b. $G(x) = f(x - 3)$



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c. $q(x) = -3f(x) - 4$



d. $r(x) = f(3x) + 2$

