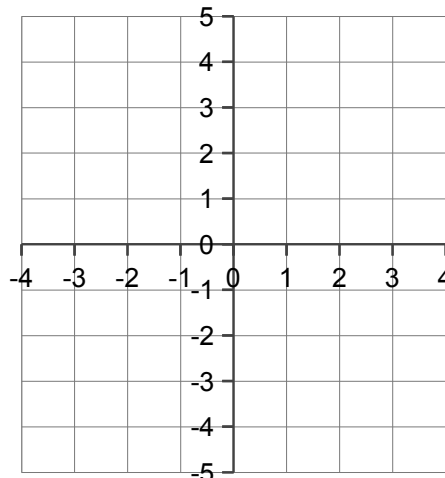
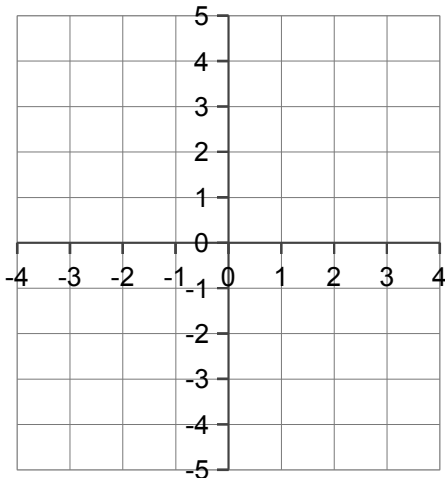
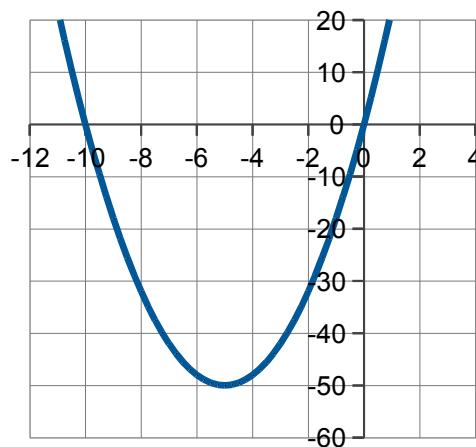


1. Given the function $f(x) = 4x^2 - 3x - 5$, find $f(-4)$.

2. Draw one curve that represents a **function** and one that represents a **non-function**.



3. Find the equation for this parabola, which also passes through $(-2, -32)$. DO NOT estimate where the vertex is ... you don't need it!



4. Find the vertex of $y = 2x^2 - 16x + 7$. State whether the vertex is a minimum or a maximum.

5. Determine where (if at all) the parabola $y = 4x^2 - 2x + 2$ and the line $y = 2x + 26$ intersect.

6. Give the equation of the parabola that begins with $y = x^2$ but is stretched 4 times vertically (taller), translated 13 units to the right and translated 2 units down.

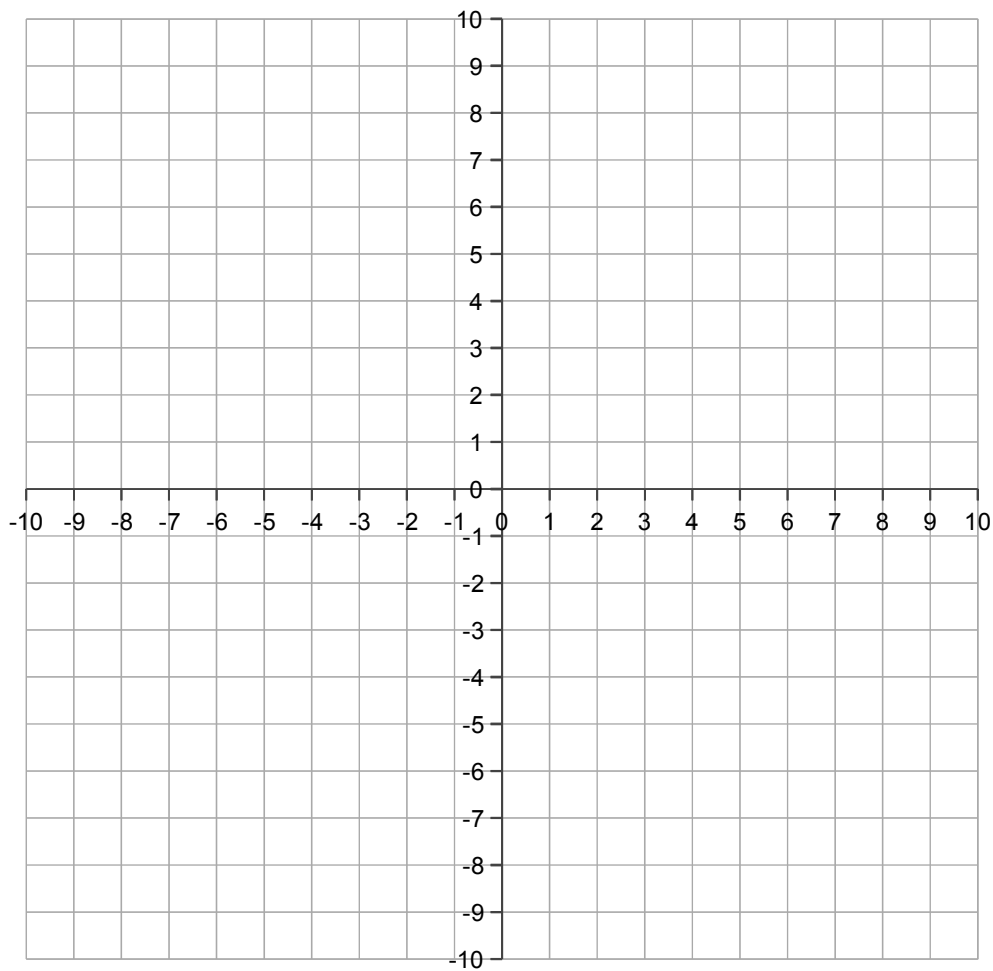
Your equation:

7. The equation for an object's height h at time t seconds after launch is $h(t) = -4.9t^2 + 19.6t + 58.8$, where h is in meters.

- a) When does the object strike the ground?
- b) What is the maximum height of the projectile?

8. a) Identify the transformations that $y = -\frac{1}{2}(x-4)^2 + 5$ experiences relative to the original function, $y = x^2$.

b) On the grid, draw the curve $y = x^2$. Then, apply each of the proper transformations, one by one, to arrive at the graph for $y = \frac{1}{2}(x-4)^2$. You will have drawn 3 curves in the end.



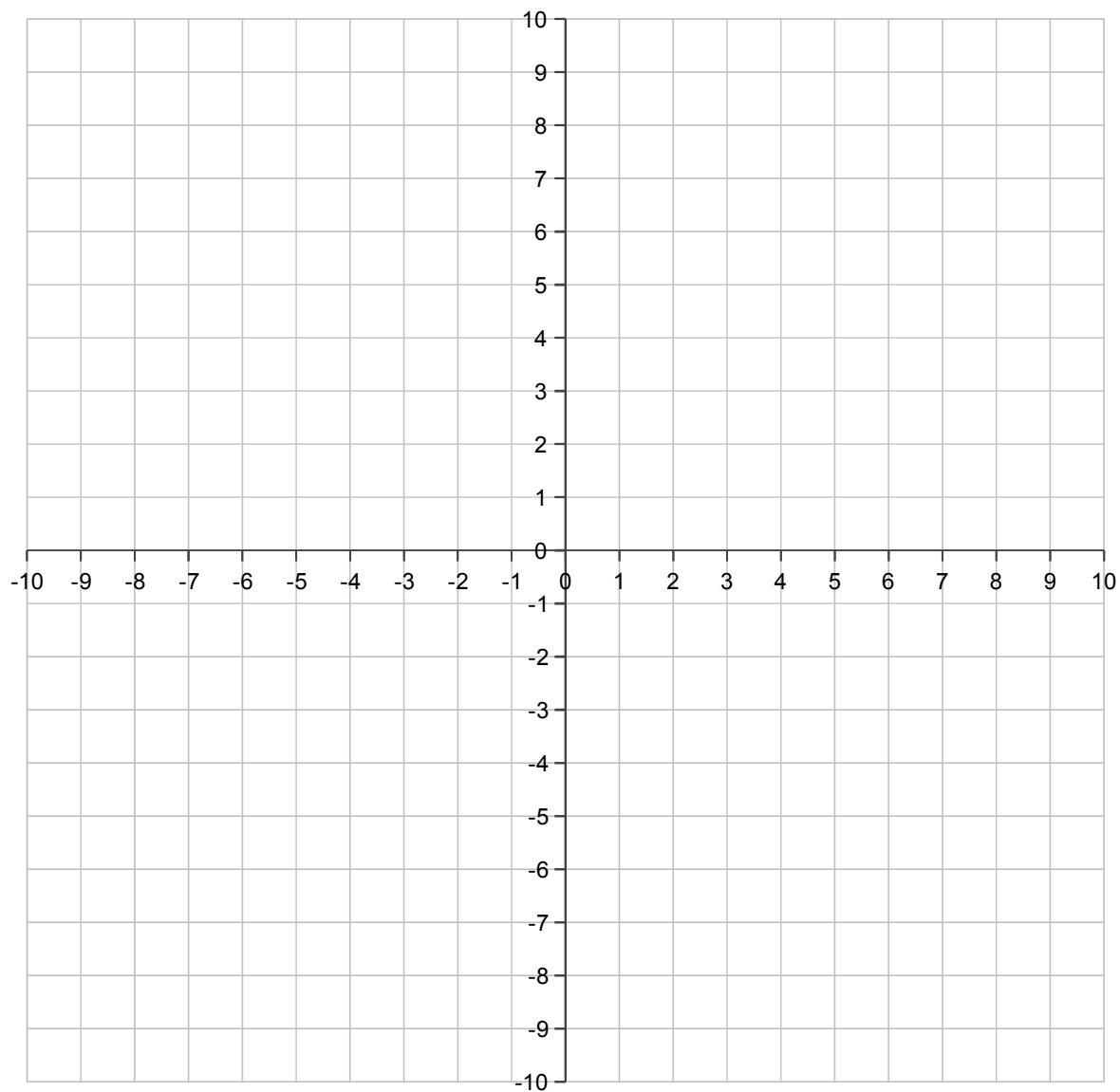
9. How is the graph of $y = \frac{1}{2}x^2$ different from the graph of $y = (\frac{1}{2}x)^2$?

10. Graph each of the following functions.

a) $y = -2(x-5)^2 + 8$

b) $y = (x+9)(x+5)$

c) $y = -5 - x^2$



11. A producer of synfuel from coal estimates that the cost, c in dollars per barrel for a production run of x thousand barrels is given by $c(x) = 9x^2 - 180x + 940$.

a) How many thousand barrels should be produced each run to keep the cost per barrel at a minimum?

b) What is the minimum cost per barrel of synfuel?