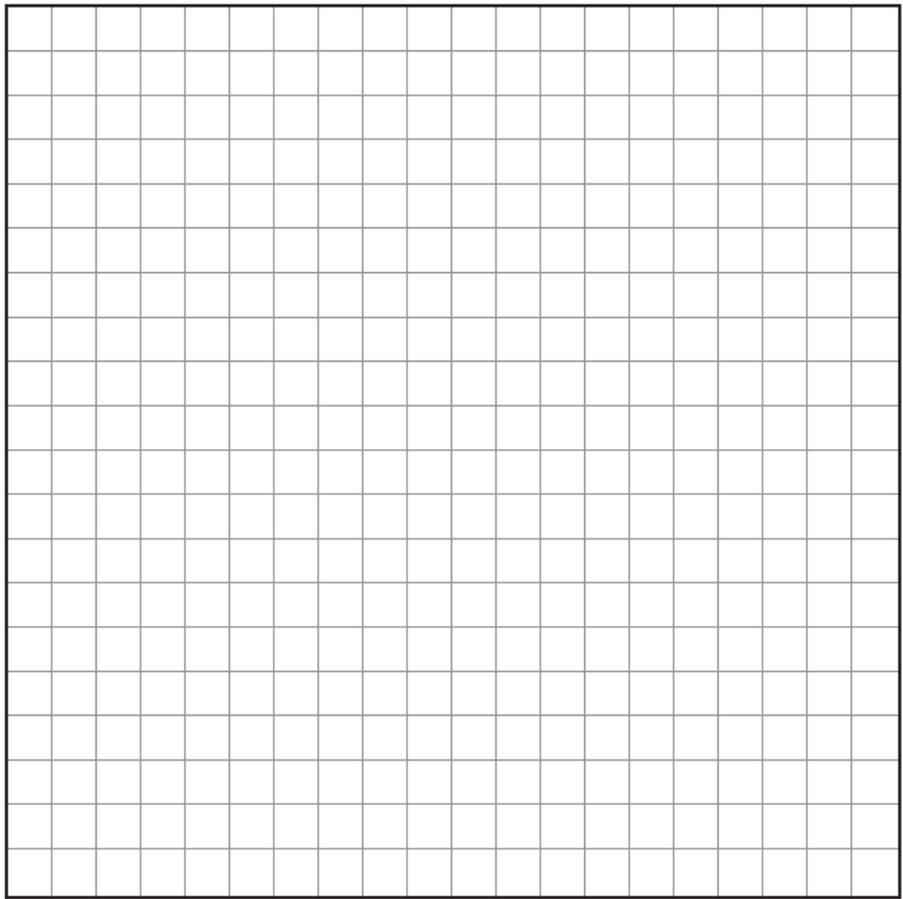


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|--|---|
| 1. Graph the solution set of $x^2 - 4x - 6 > 2x + 10$. | 4. What is the domain of $f(x) = \frac{1}{\sqrt{(4-x^2)}}$? (1) $x < 2$ (2) $ x \leq 2$ (3) $-2 < x < 2$ (4) all real numbers |
| 2. State the solution set of $\left \frac{3x-12}{4} \right \leq 6$. | 5. Harmony and Melodie were blowing bubbles when one of them landed on Derek's math homework and burst on the graph paper. The bubble formed a perfect circle on the coordinate grid with a center at $(6, -5)$ and a radius of 4.5. Which of the following represents the equation of the bubble's circle? (1) $4.5^2 = (x-6)^2 + (y+5)^2$ (2) $x^2 + y^2 = (4.5)^2$ (3) $(x+6)^2 + (y-5)^2 = 20.25$ (4) $(x-6)^2 - (y+5)^2 = 20.25$ |
| 3. Find the axis of symmetry and the coordinates of the vertex of the parabola: $y = 4x^2 - 8x - 12$. | 6. Which of the following equations represents a hyperbola that intersects the y-axis? (1) $15(x+6)^2 - 20(y-5)^2 = 205$ (2) $xy = -30$ (3) $4(y-4)^2 = 17(x+4)^2 + 100$ (4) $4y = 17x + 100$ |

7. Jocelyn and Kelly built rockets from assembly kits and are going to launch them at the same time to see whose rocket flies higher. Jocelyn's rocket's height, in feet, can be described by the equation $j(t) = -14.2t^2 + 185.5t$ while Kelly's is represented by $k(t) = -14.8t^2 + 238.5t$.

- a) Who wins the rocket race? Justify your answer.
- b) After how many seconds does each rocket land? Round to the nearest hundredth of a second.



8. Pierre throws a coin into the air from the top of the Eiffel Tower in Paris. The coin's motion is described by the equation

$$y = -4.9x^2 + 20x + 320$$

where y represents the height in meters and x represents the time in seconds. Graph the equation on the accompanying grid.

- a) How long after being thrown upward does the coin land, to the nearest tenth of a second?
- b) What is the coin's maximum height to the nearest tenth of a meter?

