

Algebra II

Week 1: Homework #4

1-6. Write the equation of the line with the given characteristics in slope intercept form.

1. Slope = $-\frac{1}{6}$, passes through the point $(-4, 5)$

2. Slope = 4, passes through the point $(-2, 0)$

3. Passes through the points $(-1, 3)$ and $(4, -13)$

4. Passes through the points $(0, \frac{5}{3})$ and $(2, -\frac{1}{3})$

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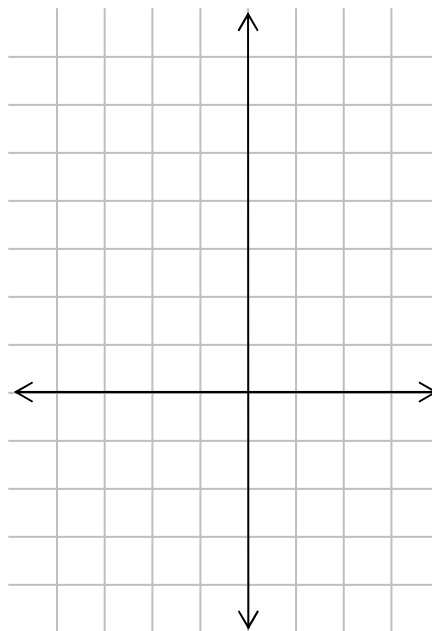
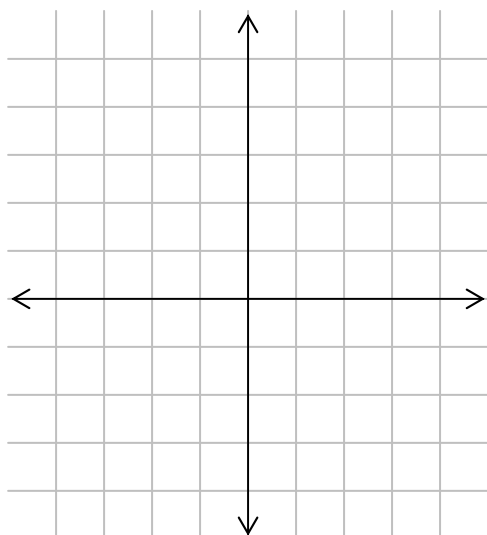
5. Passes through the point (7, -8) and is parallel to the line $y = 3x + 1$

6. Passes through the point (-5, 2) and is perpendicular to the line $y = \frac{1}{3}x + 4$

7-8. Graph the given inequality.

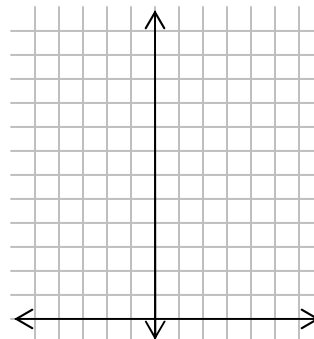
7. $y \geq x^2 - 4$

8. $3x - 2 < y \leq 3x + 5$



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9-12. If $f(x) = \begin{cases} x^2 - 3x & \text{for } x \geq 3 \\ -4x & \text{for } x < -1 \end{cases}$, find $f(-3)$, $f(3)$, and $f(4)$ and sketch a graph of the function.



13-14. Define the absolute value function given as a piecewise-defined function.

13. $f(x) - 2x = x^2 - |x|$

14. $f(x) = |x| - 2$

15-16. Find the inverse function for $f(x) = |14 - 2x|$ and state the domain and range.