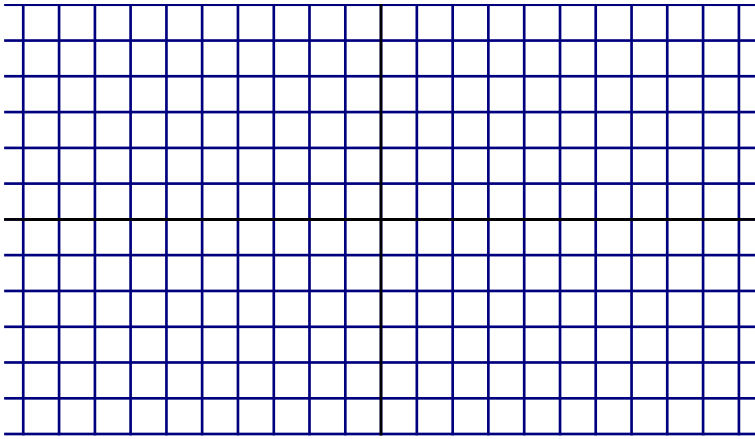


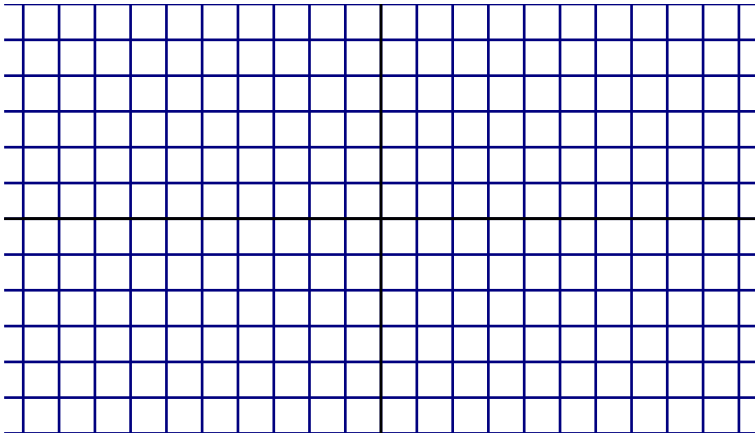
1. Find the equation of the line, in any form, for the line that is perpendicular to $-3x - 5y = 11$ and passes through the point $(-6, 2)$.

2. Draw a graph of the function $y = \frac{x^2 - 2x}{x^2 + x - 6}$, clearly showing the scale on each of the axes, identifying asymptotes, and labeling three points.

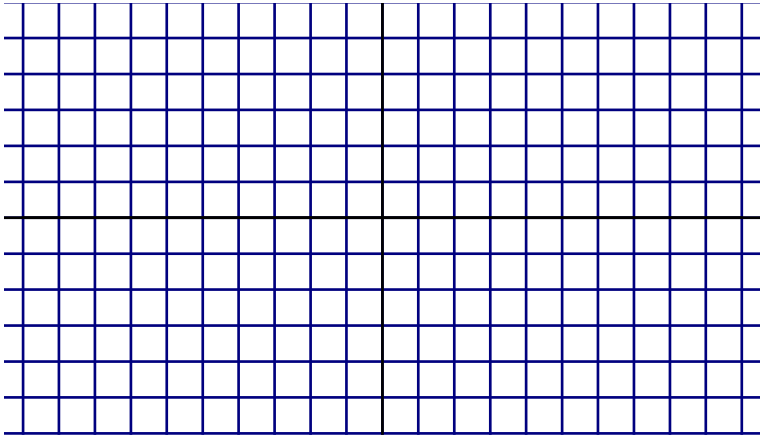


3. Find the value of k that will make the following two lines perpendicular: $-2x + ky = 7$ and $4x = -3y - 14$

4. Draw a graph of the function $y = -\cos(3x + \pi)$, clearly showing the scale on each of the axes, and labeling 3 points.

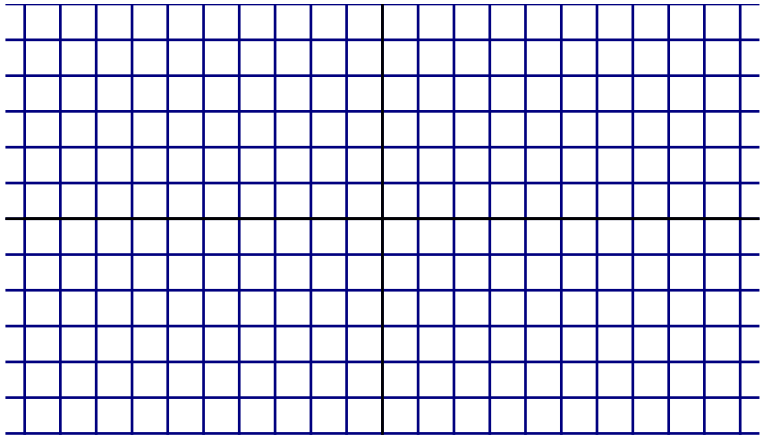


5. Draw a graph of the function $y = |-2 \log_4(4 - x)|$, showing the scale on each of the axes, and labeling 2 points.



6. If $f(x) = \frac{2x - 3}{x}$ and $g(x) = \frac{2}{3 - x}$, find $f(g(x))$, and indicate the domain and range.

7. Draw a graph of the function $y = -4(2^{-x})$, clearly showing the scale on each of the axes, and labeling 2 points.



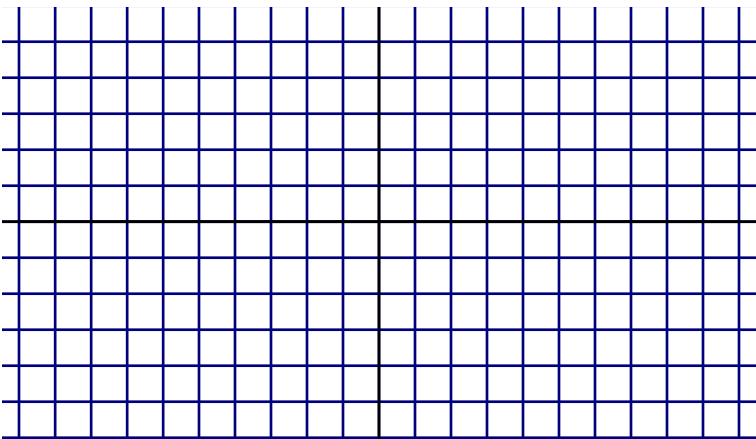
8. Find the inverse function for $y = \frac{5}{2} - x^2$ where $x \leq 0$, and indicate the domain and range for this inverse function.

9. On July 15, 2014, Matt Lauer did the ALS "Ice Bucket Challenge". Since then, the phenomenon has grown exponentially. Assuming that Matt Lauer was 1 of 5 people doing the challenge on day 0, and that 30 people did the challenge on day 6, how many people did the challenge on day 18? Assume exponential growth.

10. Find $f^{-1}(x)$ if $f(x) = 1 - \frac{3}{2x + 5}$. Indicate the domain and range for this function

(no need to verify – you have other problems to complete!)

11. Graph the following parametrically defined plane curve, clearly showing the scale on each of the axes and indicating the orientation. Plot at least 2 points. $x = \csc t$, $y = -\cot t$, t on $\left(0, \frac{\pi}{2}\right)$



12. Solve $-2 \cos^2 x + \cos x + 1 = 0$ on the interval $[0, 2\pi]$

13. Solve the following equation for x .
$$\frac{25^{x+2}}{49} = 5(7^{3x+1})$$

14. Solve the following equation for y ,
$$\log_3(x+2) - 5 + 2x = \log_3(2x-1) + \log_3(y-5)$$

15. The graph of $f(x)$ is shown. Draw the graph of $-f(2x+6) - 1$, clearly showing the scale on each of the axes.

16. Find the six trigonometric ratios at θ if
$$\theta = \cot^{-1}\left(\frac{-15}{8}\right)$$