

1. [6 points each] Find all solutions to the following equations.

a. $4(x + 5) = 17$

b. $\frac{5x}{6} + 3 = \frac{x}{2}$

c. $3|x - 1| - 2 = 7$

2. [6 points] 400 tickets were sold to a benefit dinner. Adult tickets cost \$20 and child tickets cost \$12, and a total of \$6960 in tickets were sold. How many of each type of ticket was sold?

For full credit, setup and solve an equation.

3. [6 points] A jacket usually sells for \$80 but is currently on sale for \$50. Find the discount rate.
For full credit, setup and solve an equation.

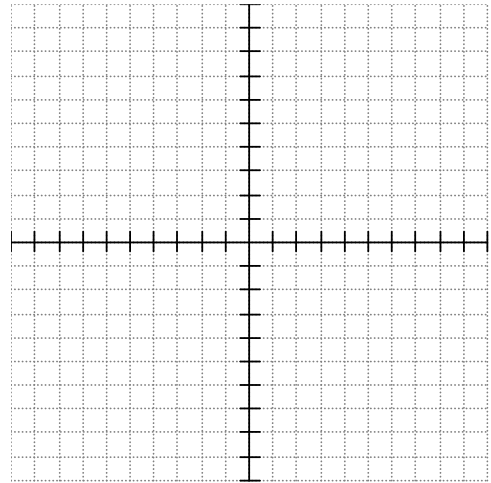
4. [6 points each] Solve the following inequalities. Then graph each solution on a number line.
- a. $7 - 2x > 4$

b. $\frac{1}{3}x + 4 < 1$ or $2x - 5 \geq 6$

c. $|x + 3| \leq 11$

5. [3 points] Is $\{(1, 2), (2, 3), (4, 3), (1, 4)\}$ a function? Explain your answer.

6. [3 points each] Let $3x - 4y - 24 = 0$
- Find the x -intercept of the graph of the equation.
 - Find the y -intercept of the graph of the equation.
 - Find the slope of the equation.
 - Graph the equation.



7. [6 points] Find the equation of the line that passes through the points $(2, 5)$ and $(-3, 7)$. Write your answer in slope-intercept form.

8. [3 points] Find the equation of the vertical line through the point $(-4, 3)$.
9. [3 points] Are the lines $y = \frac{6}{7}x + 5$ and $x = \frac{6}{7}y - 3$ parallel, perpendicular, or neither? Show all necessary work to justify your answer.

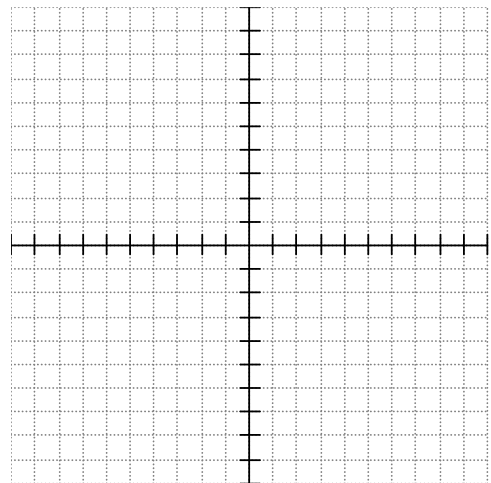
10. [3 points each] Let $f(x) = \frac{x + 3}{x - 5}$

a. Find $f(-1)$

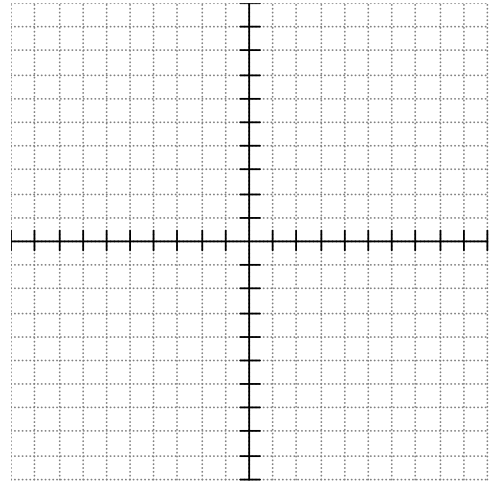
b. Find $f\left(\frac{1}{2}\right)$

c. Find $f(n - 2)$

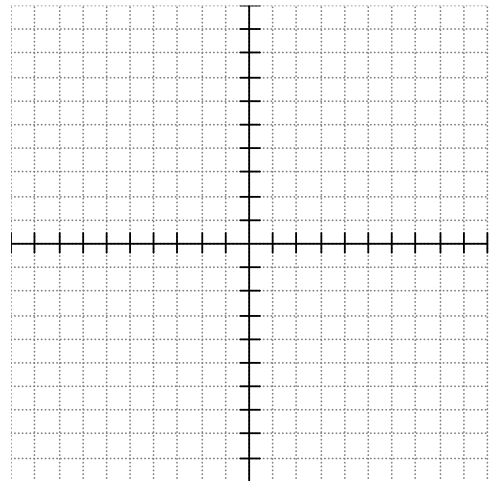
11. [6 points] Graph $x - 4y > 3$.



12. [5 points] The function $h(x) = -|x|$ was obtained by applying some transformation to the function $f(x) = |x|$. Describe the transformation, and graph $h(x)$.



13. [5 points] The function $h(x) = \sqrt{x} + 2$ was obtained by applying some transformation to the function $f(x) = \sqrt{x}$. Describe the transformation, and graph $h(x)$.



The following problem is extra credit.

[6 points] Two friends are testing the range of walkie talkies. Alfonso rides his bike directly north at 15 *mph*. Bert starts a half hour later riding his bike directly south at 12 *mph*. How long after Bert starts will the two friends be 40 miles apart, which is the maximum range the walkie talkies will work at according to the manufacturer. Round your answer to the nearest tenth of an hour.

For full credit, setup and solve an equation.