

Exam 2 Study Guide

Name _____

Answer the questions in the spaces provided. Feel free to use another piece of paper for your work

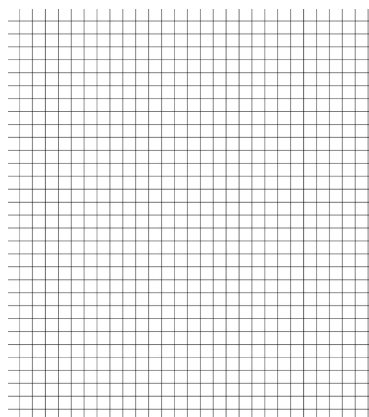
1. Find the distance, and midpoint between the points:

(a) $(-1, 4)$ and $(-1, -13)$

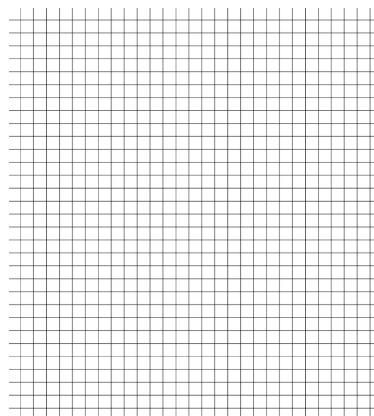
$(4, -1)$ and $(-13, -1)$

2. Derive and graph the equation for the following circles:

Radius: 1 Center: $(-3, 1)$



Radius: 5 Center: $(4, 12)$

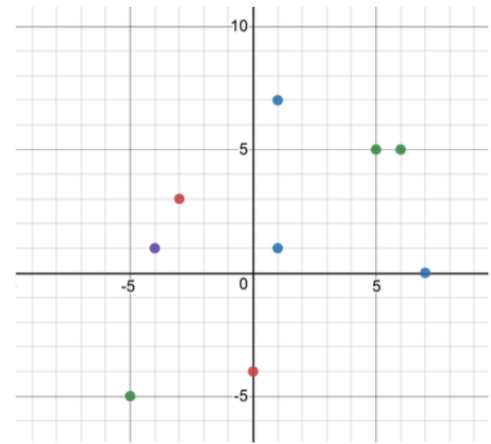
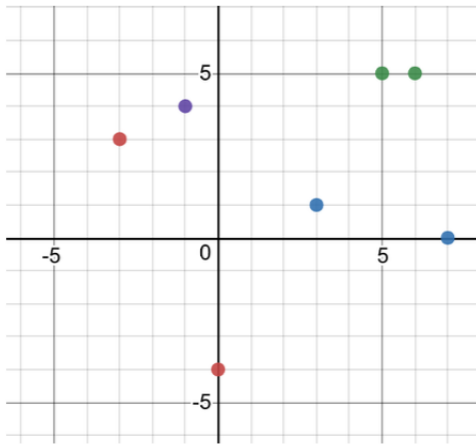


3. Rewrite the following equations of a circle in standard form and identify its radius and center:

(a) $x^2 + y^2 + 10x - 2y + 17 = 0$

$x^2 + y^2 - 8y + 3 = 0$

4. Determine if either graph could be a function:



5. Evaluate $f(x) = 2x^2 - 14 + 3x$ for each of the following values:

(a) $f(1)$

$f(-5)$

6. Evaluate $g(x) = \frac{4x+5}{2x^2-14+3x}$ for each of the following values:

(a) $g(1)$

$g(-5)$

7. Find both the x-intercepts and the y-intercepts for the following functions:

(a) $f(x) = 4x + 6$

$$g(x) = x(4x + 6)$$

(b) $f(x) = x^2 + 6x$

$$g(x) = -2x^2 + 13x + 5$$

(c) $f(x) = |x - 6|$

$$g(x) = \sqrt{x + 2} - 1$$

8. Complete the square:

(a) $4x^2 - 16 + n$

$$x^2 + \frac{2}{7}x + n$$

9. Solve and graph:

(a) $x + 3 < 4x + 8$

$$|x + 3| < 8$$

10. Solve and write in interval notation:

(a) $2(x - 3) + 4 \geq 10x$

$$-3 < 3(x - 2) + 4 \leq 10$$

11. Find both the domain and range for the following functions:

(a) $f(x) = \sqrt{4x + 6}$

$$g(x) = -2x^2 + 13x + 5$$

(b) $f(x) = |x - 6|$

$$g(x) = \frac{5x^2}{x+2} - 1$$

12. Given $f(x) = x^2 + 1$ find the average slope for between the points:

(a) $f(1)$ and $f(5)$

13. Given $f(x) = -4x + 13$ find the equation for a line that is:

(a) Parallel

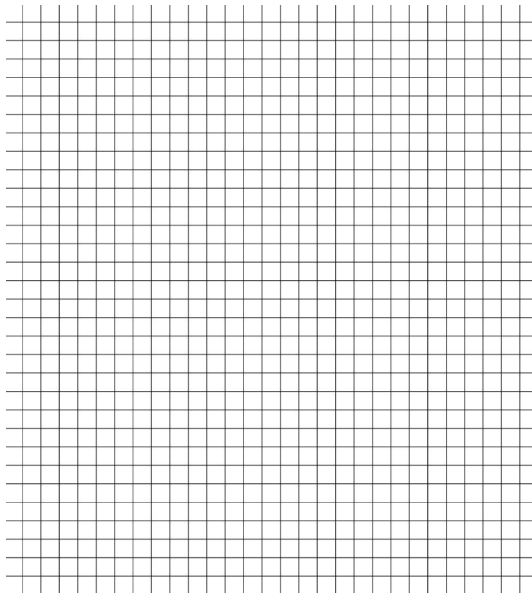
Perpendicular

(b) Perpendicular and goes through $f(2)$

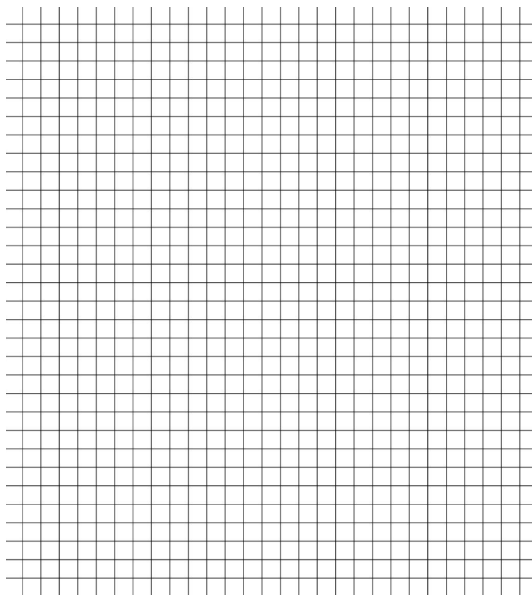
Parallel and goes through the origin

14. Graph the following functions:

(a) $f(x) = \frac{1}{2}(x+4)^2 - 2$

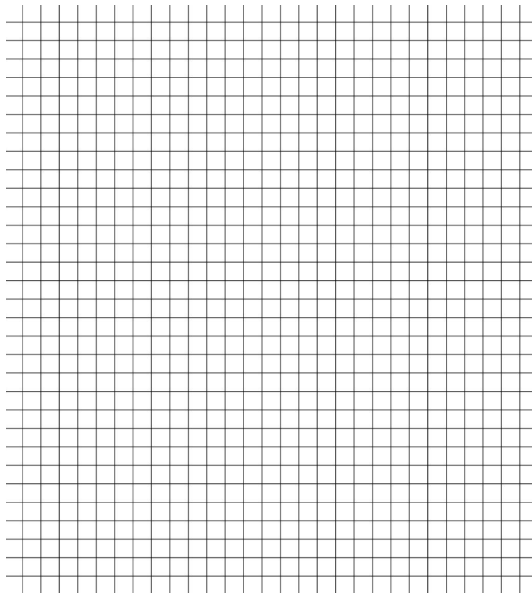


(b) $g(x) = \sqrt{2x-4}$

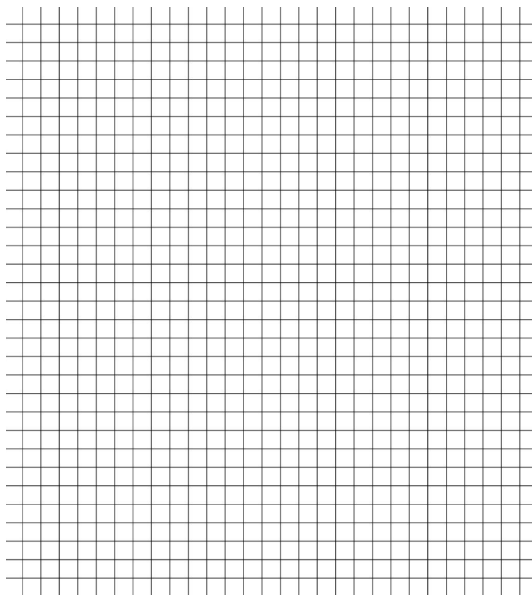


15. Derive an equation with the following attributes and graph it:

(a) $m = -5$ and $(x_1, y_1) = (-3, 5)$

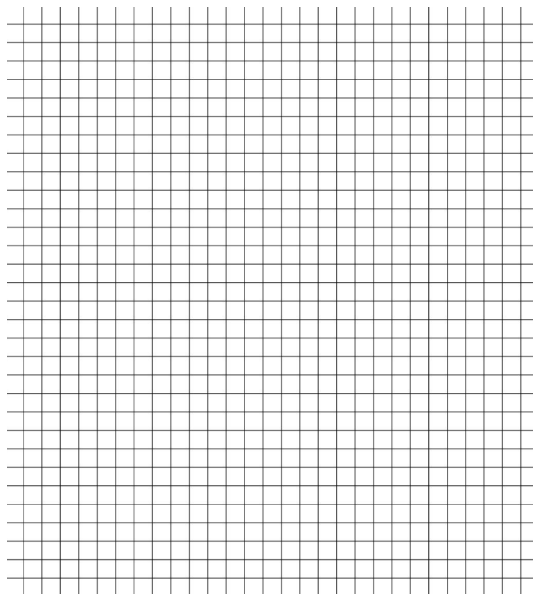


(b) $(x_0, y_0) = (3, 4)$ and $(x_1, y_1) = (6, -1)$



16. Graph the following piecewise equation:

$$(a) \quad f(x) = \begin{cases} x, & x < -10 \\ 2, & -10 \leq x \leq 4 \\ -x, & 4 < x \end{cases}$$



17. Using the functions below, compute the following:

$$f(x) = x + 2$$

$$g(x) = \sqrt{x + 2}$$

$$h(x) = x^2 - 1$$

$$(a) \quad (f + g)(x)$$

$$\left(\frac{h}{f}\right)(x)$$

$$(b) \quad (f \cdot h)(x)$$

$$(g \circ f)(x)$$

$$(c) \quad (f - h)(x)$$

$$(h \circ h)(x)$$