Math 129 - Test 2

Name _____

October 21, 2020

Score _____

Show all work to receive full credit. Supply explanations where necessary. Label your axes when graphing.

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1. (5 points [11]) Solve for y: $\sqrt[3]{5y-1}-4=0$

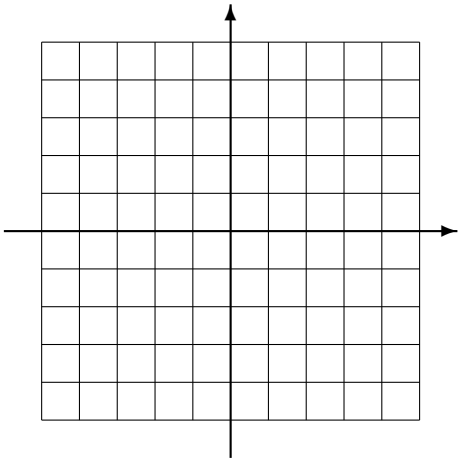
2. (6 points [7,11]) Solve for x: $x=\sqrt{15-2x}$

3. (3 points [7,11]) The equation $w^4-36w^2+35=0$ is "quadratic in form." What substitution will reduce the equation to quadratic? Make the substitution and rewrite the equation, but do not solve.

4. (3 points [11]) Calculate the distance between the points $E = (2, -1)$ and $B = (7, -9)$. Round your final answer to the nearest hundredth.

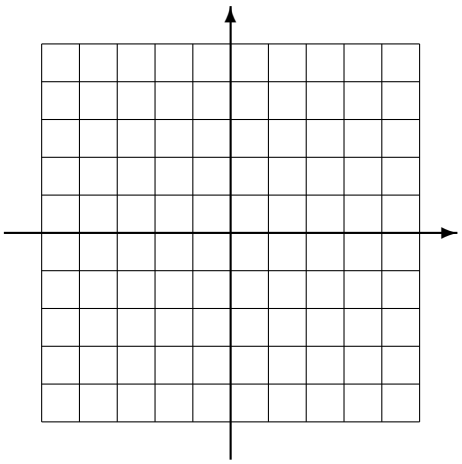
5. (3 points [11]) A line segment extends from the point $(1, -4)$ to the point $(5, 2)$. Find the coordinates of the midpoint of the segment.

6. (6 points [1,9,10]) Make a table that shows five points on the graph of the equation $y = \frac{1}{2}x^2 - 3$. Then plot your points and sketch the graph. (Label your axes.)

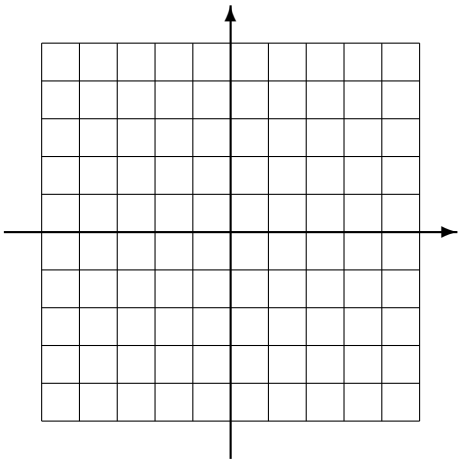


7. (4 points [9,10]) Find the standard form equation of the circle that has center $(-3, 1)$ and passes through $(6, -4)$.

8. (6 points [3]) Find the x- and y-intercepts of the line described by $5x - 2y = 8$. Then sketch the graph of the line. Label the axes and the intercepts.



9. (4 points [9,10]) Sketch the graph of the equation $(x-2)^2 + (y+3)^2 = 4$. Label your axes.



10. (6 points [2,4]) Find an equation of the line that passes through the points $(3, 4)$ and $(8, -3)$. Write your final answer in slope-intercept form.

11. (3 points [2,4]) A line is described by the equation $y + 2 = -\frac{3}{5}(x - 1)$. Find the slope of the line and a point on the line.

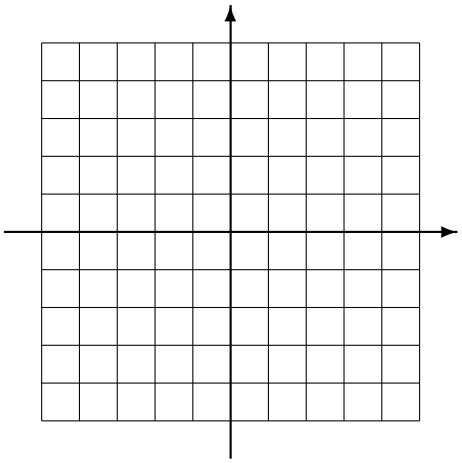
12. (10 points [2,4]) Consider the line described by the equation $7x + 5y = 5$.

    (a) Find an equation of the line that is parallel to the given line and passes through $(5, -5)$. Write your answer in standard form.

    (b) Find an equation of the line that is perpendicular to the given line and passes through $(5, -5)$. Write your answer in standard form.

13. (4 points [2,3,4]) Determine equations of the horizontal and vertical lines that pass through $(13, -17)$. Label which is which.

14. (6 points [2,4]) A line is described by the equation $5x + 2y = 6$. Write the equation in slope-intercept form. Then graph the line, and state the coordinates of two points on your line. (Label your axes.)



15. (3 points [10]) Three relations are shown below. Circle all that are NOT functions. Then write a sentence explaining why you made your choice(s).

    (a) $\{(100, 100)\}$

    (b) $\{(x, y) : y \text{ is a real number and } x = 5\}$

    (c) $\{(1, 2), (2, 1), (3, 1), (1, 3)\}$

16. (6 points [1]) Let $f(x) = \sqrt{6 - 3x}$.

(a) What is the domain of f?

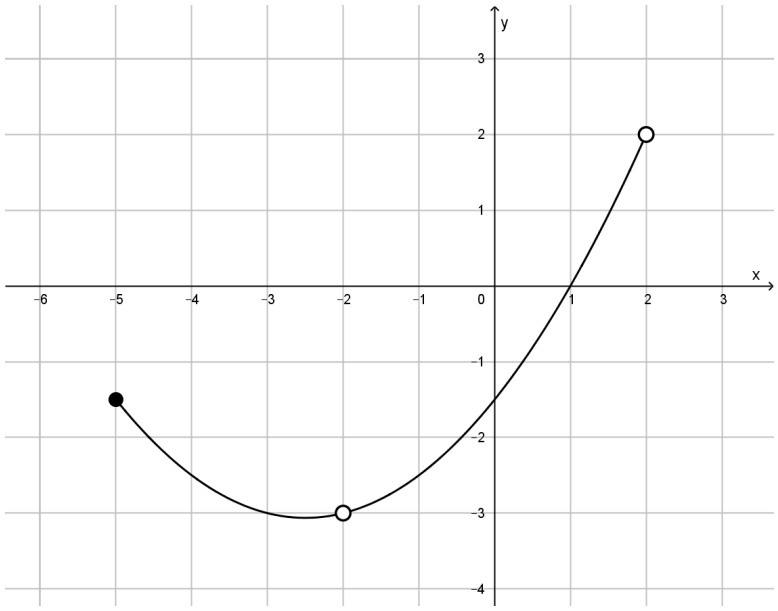
(b) Evaluate $f(-10)$.

(c) Evaluate $f(\frac{2}{3})$.

17. (3 points [1]) Determine the domain of $h(x) = \dfrac{x - 3}{x^2 - 12x + 27}$.

18. (5 points [5]) Let $f(x) = x^2 - 3x$. Expand and simplify the expression $f(x+5) - f(x)$.

19. (14 points [1,10]) The graph of $y = f(x)$ is shown below. Use the graph for each part of this problem.



(a) Is this the graph of a function? How do you know?

(b) What is the domain of f?

(c) What is the range of f?

(d) Determine $f(-5)$.

(e) Determine $f(-2)$.

(f) Determine $f(0)$.

(g) How many solutions are there for the equation $f(x) = -2$?