



\_\_\_\_\_ 4. Fill in the table of values for the function  $y=31-3x^3$ .

$x$	$y$
-4	?
-1	?
1	?
2	?
3	?

a.  $x$        $y$

-4	-50
-1	7
1	28
2	34
3	223

c.  $x$        $y$

-4	223
-1	34
1	28
2	7
3	-50

e.  $x$        $y$

-4	223
-1	34
1	28
2	5
3	-50

b.  $x$        $y$

-4	222
-1	34
1	28
2	7
3	-50

d.  $x$        $y$

-4	-223
-1	-34
1	-28
2	-7
3	50

\_\_\_\_\_ 5. The endpoints of a diameter of a circle are  $P(2,2)$  and  $Q(5,5)$ . Find the equation of the circle.

a.  $(x+3.5)^2 + (y+3.5)^2 = c$ .      c.  $(x-5)^2 + y^2 = 41$       e.  $(x-3)^2 + (y-3)^2 = 4.5$

b.  $(x-3.5)^2 + (y-3.5)^2 = d$ .      d.  $(x-4.5)^2 + (y-4.5)^2 =$

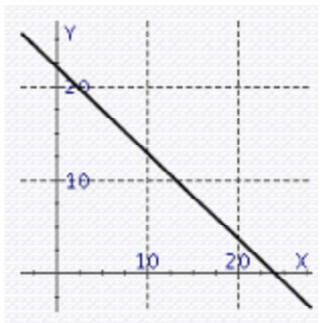
\_\_\_\_\_ 6. Find the center and radius of the circle with the equation of  $x^2 + y^2 + 10x = 0$ .

- a. center  $(-5, 0)$ , radius 8      c. center  $(-5, 0)$ , radius 5      e. center  $(5, 0)$ , radius 25  
 b. center  $(-5, 0)$ , radius 7      d. center  $(0, -5)$ , radius 25

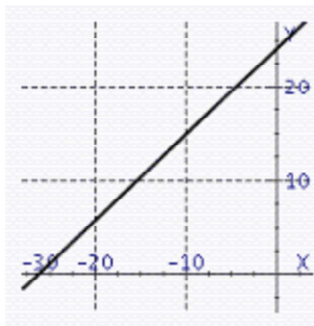


\_\_\_ 10. Find the slope and the y-intercept of the line  $\frac{1}{12}x - \frac{1}{11}y + 2 = 0$  and draw its graph.

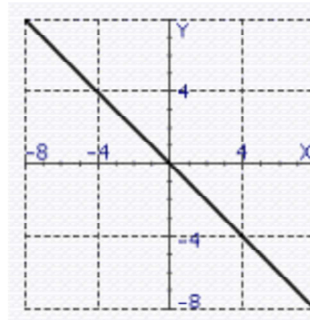
a.  $m = -\frac{11}{12}, y\text{-intercept} = 22$  c. 5



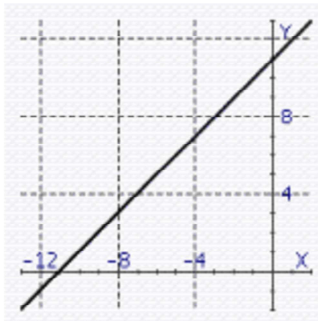
$m = \frac{11}{12}, y\text{-intercept} = 24$



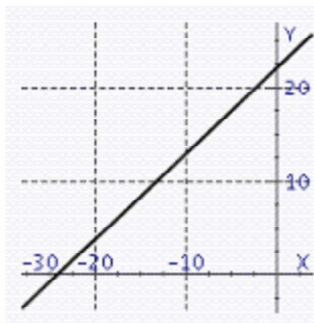
e.  $m = -1, y\text{-intercept} = 0$



b.  $m = 1, y\text{-intercept} = 11$



d.  $m = \frac{11}{12}, y\text{-intercept} = 22$



\_\_\_ 11. Express the following rule in function notation:

"square, add 5, then take the square root"

a.  $f(x) = \sqrt{x^2 + 5}$

c.  $f(x) = (\sqrt{x} + 5)^2$

e.  $f(x) = (\sqrt{x} + \sqrt{5})^2$

b.  $f(x) = \sqrt{\sqrt{x} + 5}$

d.  $f(x) = \sqrt{(x+4)^2}$

\_\_\_ 12. Evaluate the function  $f(x) = 5|x - 4|$  at  $f(12)$ .

a.  $f(12) = 34$

c.  $f(12) = 35$

e.  $f(12) = 36$

b.  $f(12) = 38$

d.  $f(12) = 40$

\_\_\_\_\_ 13. Find the domain of the following function:

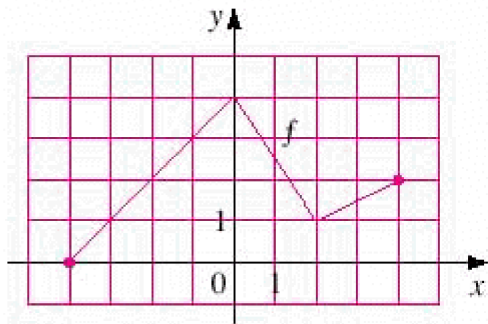
$$f(x) = \frac{x+10}{x^2-4}$$

- a.  $(-\infty, -2) \cup (-2, 2) \cup (2, \infty)$       e.  $(-\infty, 2) \cup (2, \infty)$   
 b.  $(-\infty, -10) \cup (-10, -2) \cup (-2, \infty)$       d.  $(-\infty, 2] \cup [2, \infty)$

\_\_\_\_\_ 14. If we reflect the graph of  $h(x)$  in the  $y$ -axis, we will obtain the graph of what function?

- a.  $h(-|x|)$       c.  $-h(|x|)$       e.  $h(-x)$   
 b.  $h(|x|)$       d.  $-h(x)$

\_\_\_\_\_ 15. The graph of  $y = f(x)$  is given. What should we do to obtain the graph of the function  $5f(x)$ ?



- a. stretch the graph vertically by the factor of 5      c. reflect the graph in the  $y$ -axis      e. reflect the graph in the  $x$ -axis  
 b. shift the graph down 5 units      d. shift the graph 5 units to the right

\_\_\_\_\_ 16. By how many units must we shift the graph of  $f(x) = 2(x+6)^3$  to obtain the graph of  $f(x) = 2(x+10)^3$ ?

- a. 9      c. 3      e. 6  
 b. 4      d. 2

- \_\_\_\_\_ 17. Determine the correct equation for the line passing through the point (0, 7) with a slope of 8.
- a.  $y = \frac{1}{8}x + 7$
  - b.  $y = 8x + 7$
  - c.  $y = 8x - 7$
  - d.  $y = -8x - 7$
  - e.  $y = -8x + 7$
- \_\_\_\_\_ 18. Determine the correct equation for the line passing through the point (3, 19) and the point (10, 1).
- a.  $7y + 18x + 187 = 0$
  - b.  $7y + 18x - 187 = 0$
  - c.  $7y - 18x - 187 = 0$
  - d.  $7y - 18x + 187 = 0$
  - e. none of these
- \_\_\_\_\_ 19. Determine the correct equation for the line passing through the point (30, -8) and parallel to the line  $x + 5y = 20$ .
- a.  $y = -\frac{1}{5}x - 2$
  - b.  $y = 5x - 2$
  - c.  $y = -\frac{1}{5}x - 5$
  - d.  $y = \frac{1}{5}x + 2$
  - e.  $y = 5x + 2$

**Short Answer**

20. Express the following rule in function notation using the variable  $x$  and the function  $f$ :

"Square, add 4, then take the square root"

[For example: the rule "Square, then subtract 5" is expressed as the function  $f(x) = (x^2 - 5)$ ]

21. Find the domain of the following function:

$$f(t) = \sqrt[3]{3t - 5}$$

Express your answer using interval notation.

22. Find the domain of the following function:

$$g(x) = \sqrt[8]{x^2 - 9x}$$

Express your answer using interval notation.

### Matching

Evaluate the function  $f(x) = 4x + 8$  for each lettered value.

*Match each result below with the letter of the corresponding value.*

- a.  $f(1)$
- b.  $f(-2)$
- c.  $f(a)$
- d.  $f(-a)$
- e.  $f(a+b)$

\_\_\_\_\_ 23. 0

\_\_\_\_\_ 24.  $4a+4b+8$

\_\_\_\_\_ 25.  $4a+8$

\_\_\_\_\_ 26.  $-4a+8$

**MATH 171 Exam 1 Review, Fall 2009**  
**Answer Section**

**MULTIPLE CHOICE**

- |            |        |                      |
|------------|--------|----------------------|
| 1. ANS: E  | PTS: 1 | MSC: srca.02.01.08cm |
| 2. ANS: E  | PTS: 1 | MSC: srca.02.01.48m  |
| 3. ANS: A  | PTS: 1 | MSC: srca.02.02.22m  |
| 4. ANS: C  | PTS: 1 | MSC: srca.02.02.42m  |
| 5. ANS: B  | PTS: 1 | MSC: srca.02.02.59m  |
| 6. ANS: C  | PTS: 1 | MSC: srca.02.02.69m  |
| 7. ANS: B  | PTS: 1 | MSC: srca.02.02.07m  |
| 8. ANS: B  | PTS: 1 | MSC: srca.02.04.01m  |
| 9. ANS: A  | PTS: 1 | MSC: srca.02.04.13m  |
| 10. ANS: D | PTS: 1 | MSC: srca.02.04.45m  |
| 11. ANS: A | PTS: 1 | MSC: srca.03.01.04m  |
| 12. ANS: D | PTS: 1 | MSC: srca.03.01.19m  |
| 13. ANS: A | PTS: 1 | MSC: srca.03.01.41m  |
| 14. ANS: E | PTS: 1 | MSC: srca.03.04.04m  |
| 15. ANS: A | PTS: 1 | MSC: srca.03.04.11m  |
| 16. ANS: B | PTS: 1 | MSC: srca.03.04.15m  |
| 17. ANS: B | PTS: 1 | MSC: srca.02.04.15m  |
| 18. ANS: B | PTS: 1 | MSC: srca.02.04.19m  |
| 19. ANS: A | PTS: 1 | MSC: srca.02.04.27m  |

**SHORT ANSWER**

20. ANS:  
 $f(x) = \sqrt{x^2 + 4}$
- PTS: 1                      MSC: srca.03.01.04
21. ANS:  
 $(-\infty, \infty)$
- PTS: 1                      MSC: srca.03.01.45
22. ANS:  
 $(-\infty, 0] \cup [9, \infty)$
- PTS: 1                      MSC: srca.03.01.51

**MATCHING**

23. ANS: B                      PTS: 1                      MSC: srca.03.01.13

- |            |        |                    |
|------------|--------|--------------------|
| 24. ANS: E | PTS: 1 | MSC: srca.03.01.13 |
| 25. ANS: C | PTS: 1 | MSC: srca.03.01.13 |
| 26. ANS: D | PTS: 1 | MSC: srca.03.01.13 |