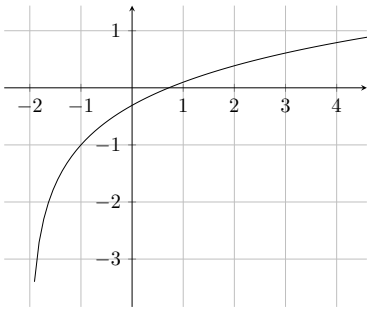
Math 110 Exam 1 All Sections including SL Center
Sep. 9–18, 2015 Do not write on this exam.

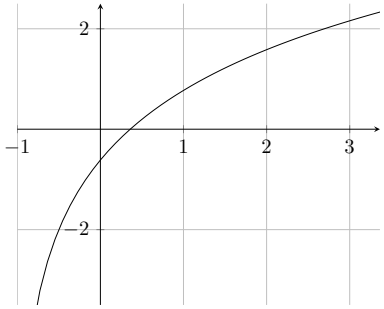
The graph of the function $y = f(x)$ is given:



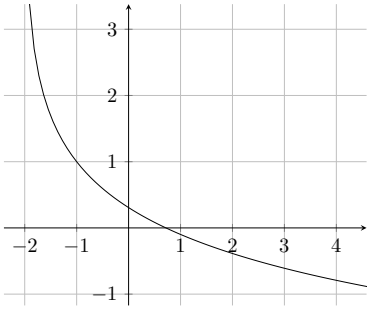
Choose the graph for each of the following functions.

1. $y = f(|x|)$
2. $y = f(-x)$
3. $y = 2f(2x)$
4. $y = |f(x)|$
5. $y = f(x+1)$
6. $y = f(x) - 1$
7. $y = f\left(\frac{x}{2}\right)$
8. $y = -f(x)$

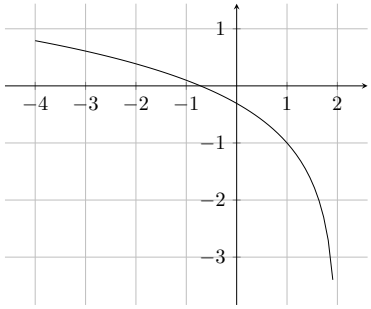
A.



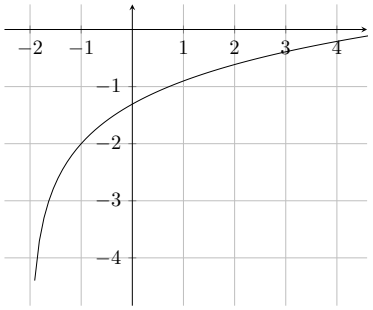
B.



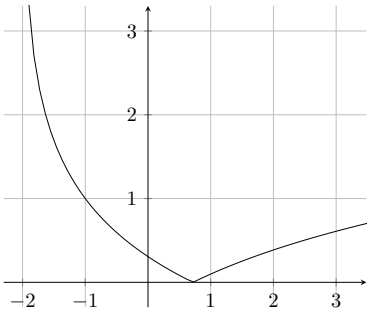
C.



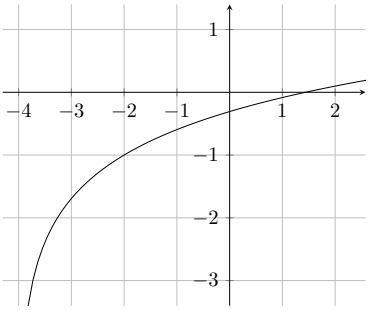
D.



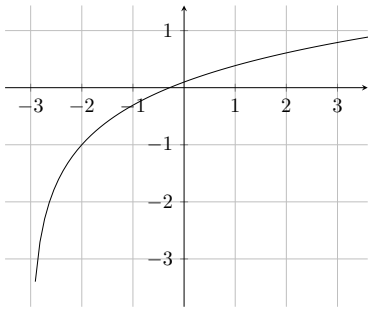
E.



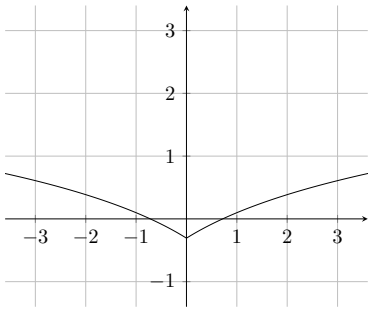
F.



G.

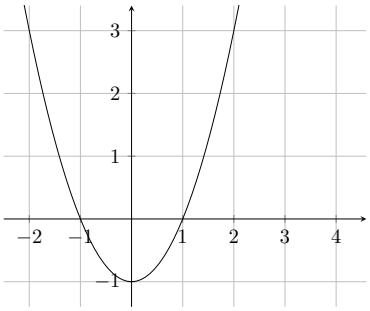


H.



For problems 9–12 choose the equation that yields the given graph.

9.



A. $y = 2x^2 + 1$

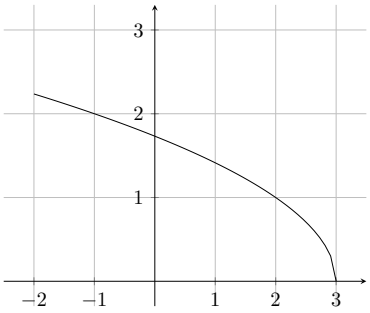
B. $y = (x-1)^2$

C. $y = (1-x)^2 + 1$

D. $y = x^2 - 1$

E. $y = 2x^2 - 1$

10.



A. $y = \sqrt{3+x}$

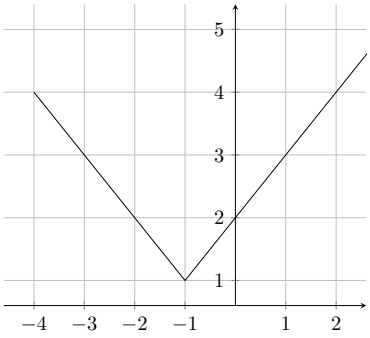
B. $y = \sqrt{x+3}$

C. $y = \sqrt{x-3}$

D. $y = \sqrt{3-x}$

E. $y = 3 - \sqrt{x}$

11.



A. $y = |x+1| + 1$

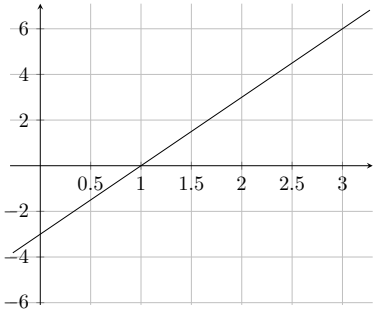
B. $y = |x-1| + 1$

C. $y = |x+1| - 1$

D. $y = |x-1| - 1$

E. $y = |x-2| + 1$

12.



A. $y = 1 - 3x$

B. $y = 3(x-1)$

C. $y = 2x - 1$

D. $y = 3x - 1$

E. $y = \frac{1}{3}x - 1$

Answer the following questions for the quadratic function $f(x) = -3x^2 + 6x + 1$ whose graph is a parabola

13. The graph of the functions opens: A. Up B. Down

14. What is the vertex of the parabola?

A. $(-1, -8)$ B. $(0, 1)$ C. $(2, 1)$ D. $(1, 2)$ E. $(1, 4)$

15. What is the equation of the axis of symmetry for the function?

A. $x = 2$ B. $x = -2$ C. $x = 1$ D. $x = -1$ E. $x = 0$

16. What is the y-intercept of the function?

A. 0 B. 1 C. 2 D. 3 E. 4

17. How many x-intercepts does the function have?

A. None B. 1 C. 2 D. 3 E. 4

18. What is the range of the function?
A. $\{y | \, y \geq -1\}$
B. $\{y | \, y \leq -1\}$
C. $\{y | \, y \geq 4\}$
D. $\{y | \, y \leq 4\}$
E. All real numbers.

19. What is the domain of the function?
A. $\{y | \, y \geq -1\}$
B. $\{y | \, y \leq -1\}$
C. $\{y | \, y \geq 4\}$
D. $\{y | \, y \leq 4\}$
E. All real numbers.

20. What is the largest interval on which the function is increasing?
A. $(-\infty, 1)$
B. $(1, \infty)$
C. $(-\infty, 4)$
D. $(4, \infty)$
E. All real numbers.

1. h
2. c
3.a
4. e
5. g
6. d
7. f
8. b
9. d
10. d
11. a
12. b
13. b
14 e
15 c
16 b
17 c
18 d
19 e
20 a