

Chapter 7 Test

Multiple Choice

For #1 to 6, select the best answer.

1. The order of real numbers $\left|\frac{4}{3}\right|$, $|-9|$, $-|2|$, $|0|$, $|-3|$ from least to greatest is

A $|-9|$, $|-3|$, $-|2|$, $|0|$, $\left|\frac{4}{3}\right|$

B $|0|$, $\left|\frac{4}{3}\right|$, $-|2|$, $|-3|$, $|-9|$

C $-|2|$, $|0|$, $\left|\frac{4}{3}\right|$, $|-3|$, $|-9|$

D $-|2|$, $|-9|$, $|-3|$, $|0|$, $\left|\frac{4}{3}\right|$

2. The value of the expression $-|-11 - (-7)|$ is

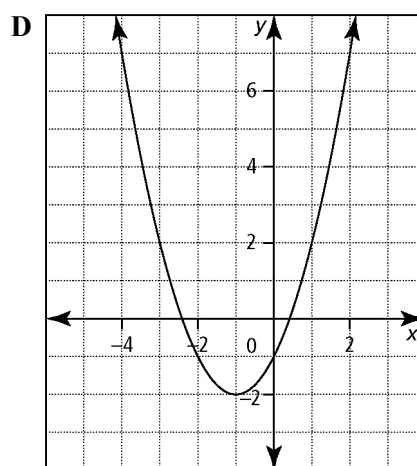
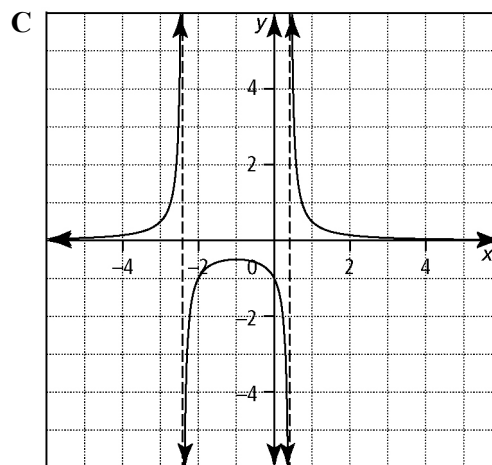
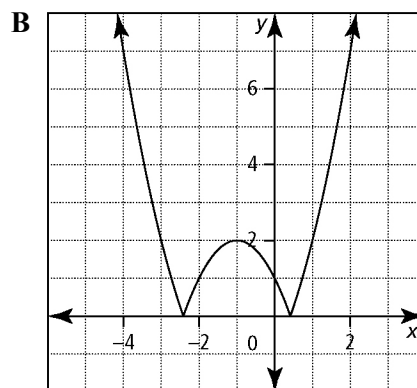
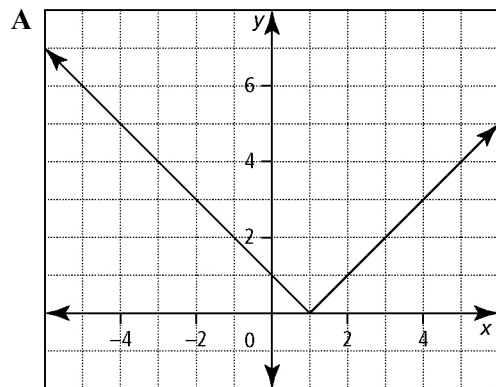
A -4

B 4

C -18

D 18

3. Consider the function $f(x) = (x + 1)^2 - 2$. Which graph represents $y = |f(x)|$?



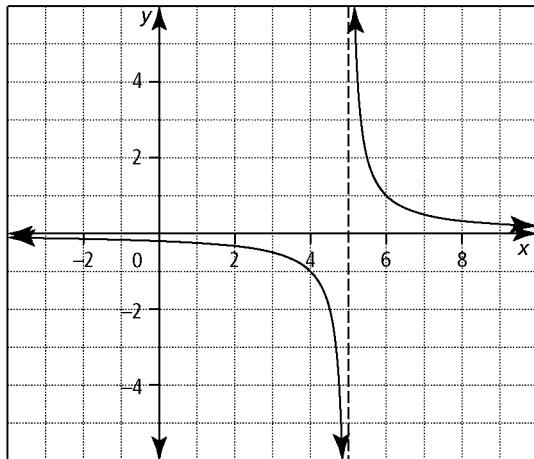
4. The absolute value equation $|2r + 5| = 11$ has the solution(s)

A $r = -3$ B $r = 8$
C $r = 3$ and $r = -8$ D $r = 3$ and $r = 11$

5. Which statement is false?

A $-|20 + (-2)^2 - 4^2| = -8$
B $|x + 3| = -3$ has two solutions.
C $y = \frac{1}{x+3}$ has a vertical asymptote at $x = -3$.
D If $\left(4, \frac{1}{3}\right)$ is on the graph of $y = \frac{1}{f(x)}$, then $(4, 3)$ is on the graph of $y = f(x)$.

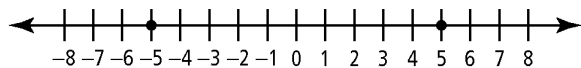
6. Given the graph of $y = \frac{1}{f(x)}$, which of the following expressions represents $y = f(x)$?



A $x = 5$ B $f(x) = x + 5$
C $f(x) = x - 5$ D $f(x) = \frac{1}{x-5}$

Short Answer

7. Write the absolute value expression that represents the two points on the number line.



8. Write the absolute value function $y = |3x - 4|$ in piecewise notation.

9. Write an absolute value equation that has solutions $x = 2$ and $x = 8$.

10. Solve the equation $|x + 1| + 5 = 3x$ algebraically. Verify the solution.

11. Consider the function $f(x) = x^2 + x - 6$. What are equations of the vertical asymptotes for the graph of $y = \frac{1}{f(x)}$?

Extended Response

12. Consider the function $f(x) = -x + 5$.

a) Sketch the graph of $y = |f(x)|$.
b) Determine the x -intercept of the graph of $y = |f(x)|$.
c) State the domain and range of the graph of $y = |f(x)|$.

13. The average age in a grade 11 class is 16 years. The difference between Alain's age and the average age is $\frac{3}{4}$ of a year.

a) What equation involving absolute value could be used to determine Alain's age?
b) Solve the equation to determine the two possible ages for Alain.
c) Why are there two possible answers in this situation?

14. Consider the function $f(x) = 2x^2 + 5x - 12$.

a) Identify the values of x for which $y = \frac{1}{f(x)}$ has vertical asymptotes.
b) Sketch the graphs of $f(x) = 2x^2 + 5x - 12$ and $y = \frac{1}{f(x)}$ on the same set of axes.

