1. $-2x(x+3)-(x+1)(x-2)=$
   a. $-x^2-7x-2$.
   b. $-x^2+5x+2$.
   c. $-3x^2-7x+2$.
   d. $-3x^2-5x+2$.
   e. $-3x^2+5x-2$.

2. $\dfrac{x}{x+2}-\dfrac{7}{x-2}=$

   a. $\dfrac{x-7}{x+2}$.
   b. $\dfrac{x+7}{x+2}$.
   c. $\dfrac{x^2-9x-14}{x^2-4}$.
   d. $\dfrac{x^2-9x+14}{x^2-4}$.
   e. $\dfrac{x-7}{4}$.

3. $\sqrt[3]{x^2}=$

   a. $x^{\frac{2}{3}}$. b. x^{-3}. c. $x^{\frac{3}{2}}$. d. x^{-6}. e. x^6.

4. $\dfrac{5^{-2}x^{-1}}{x^4y^2}=$
   a. $\dfrac{1}{25x^3y^2}$.
   b. $\dfrac{1}{10x^5y^2}$.
   c. $\dfrac{25x^5}{y^2}$.
   d. $\dfrac{10}{x^3y^2}$.
   e. $\dfrac{1}{25x^5y^2}$.

5. $(64)^{-\frac{1}{2}} =$

a. 8. b. -4. c. $-\frac{1}{8}$. d. $\frac{1}{8}$. e. $\frac{1}{4}$.

6. If $\sqrt[3]{x} + a = b$, then $x =$

a. $(b-a)^3$.
b. $(a-b)^3$.
c. $b^3 - a^3$.
d. $a^3 - b^3$.
e. $\sqrt[3]{b-a}$.

7. $\dfrac{\frac{1}{x} - \frac{1}{y}}{y^2 - x^2} =$

a. $xy(x+y)$.
b. $\dfrac{1}{xy(x+y)}$.
c. $\dfrac{1}{-(x^3+y^3)}$.
d. $y - x$.
e. $\dfrac{1}{x+y}$.

8. $|2x+7| \le 1$ is equivalent to which of the following?

a. $x \le -3$
b. $x \le 3$
c. $3 \le x \le 4$
d. $-4 \le x \le -3$
e. $0 \le x \le 3$

9. $a^{\frac{2}{3}} \cdot a^{\frac{1}{4}} =$

a. $a^{\frac{1}{6}}$. b. $a^{\frac{2}{7}}$. c. $a^{\frac{11}{12}}$. d. $a^{\frac{1}{4}}$. e. $a^{\frac{3}{7}}$.

10. In the figure below, if the length of AB is 10, find the length of AD.

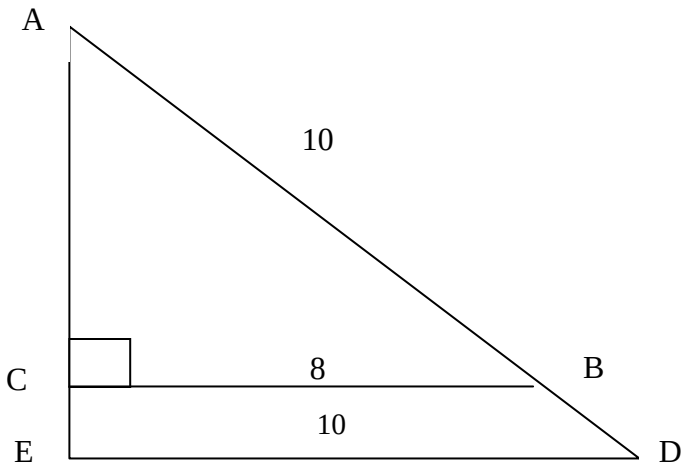
a. $11\frac{3}{8}$

b. $11\frac{3}{4}$

c. 12

d. $12\frac{1}{4}$

e. $12\frac{1}{2}$



11. One solution of the equation $x^2 + 7x - 2 = 0$ is

a. $\frac{7+\sqrt{41}}{2}$.

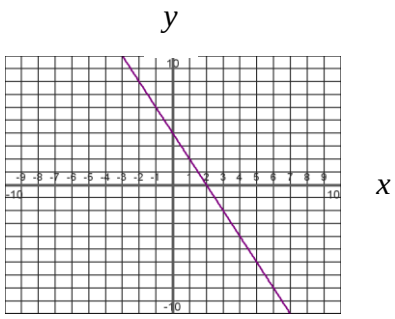
b. $\frac{7-\sqrt{41}}{2}$.

c. $\frac{7+\sqrt{57}}{2}$.

d. $\frac{-7+\sqrt{41}}{2}$.

e. $\frac{-7-\sqrt{57}}{2}$.

12. What is the slope of the line shown? You may assume that each tick mark represents one unit.



a. –2 b. $-\frac{1}{2}$ c. 1 d. 2 e. $\frac{1}{2}$

13. If $f(x)=4x-2$, then $f(x-1)=$

a. $4x^2-6x+2$.
b. $4x^2+2x+2$.
c. $4x+2$.
d. $4x-6$.
e. $4x-1$.

14. The graph of which of the following equations is a line parallel to the graph of $x-5y=8$?

a. $x+5y=8$
b. $5x-y=8$
c. $2x+10y=8$
d. $2x-10y=8$
e. $10x-2y=8$

15. If $z=\dfrac{x-8}{2x}$, then $x=$

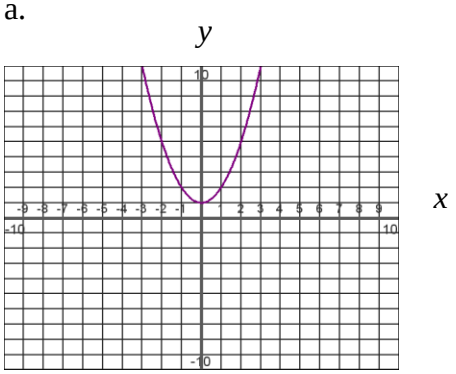
a. $\dfrac{8}{1-2z}$.
b. $\dfrac{8}{2z-1}$.
c. $\dfrac{z-8}{2}$.
d. $\dfrac{z+8}{2}$.
e. $2z-1$.

16. If $\sqrt{x+b}=a$, then $x=$

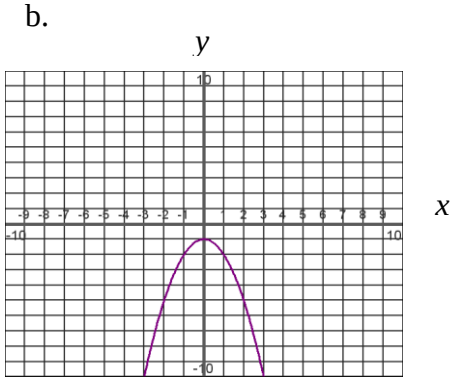
a. $a-b^2$.
b. $a-\sqrt{b}$.
c. a^2-b.
d. a^2+b.
e. $a+\sqrt{b}$.

17. Which of the following could represent the graph of $y = -x^2 - 1$? You may assume that each tick mark represents one unit.

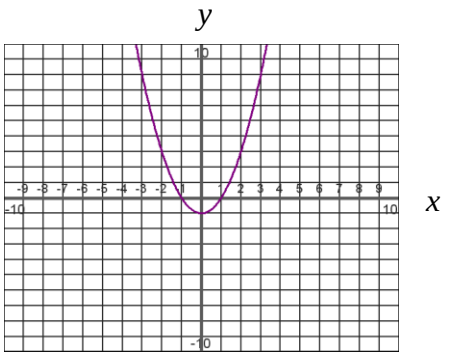
a.



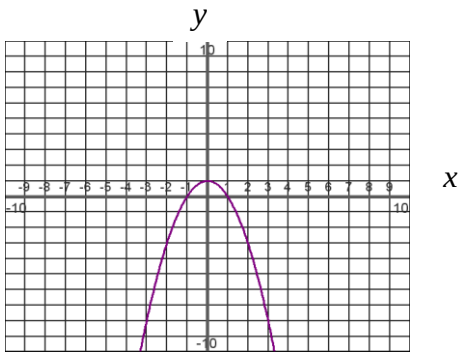
b.



c.



d.



e.