EXERCISE 1: Answers for this exercise start on page 319.

1

$$48 = \frac{8}{-x}$$

What is the solution to the given equation?

2

If $18 + 9x = 54$, what is the value of $2 + x$?

3

$$9 = -24 + 3x$$

Which equation has the same solution as the given equation?

A) $-3x = -15$
B) $3x = -15$
C) $-3x = -33$
D) $3x = -33$

4

If $3x - 8 = -23$, what is the value of $6x - 7$?

A) -5
B) -21
C) -30
D) -37

5

$$3(5 - 2x)(3 + x) = 0$$

What positive value of x is a solution to the given equation?

6

$$-3(r - 9) + 5(r - 9) = -4$$

What value of r is the solution to the given equation?

7

If $x^2 + 3x + 16 = 0$, what is the value of $5x^2 + 15x$?

8

If $\frac{12 - x}{9} = \frac{12 - x}{4}$, the value of $12 - x$ is between which of the following pairs of values?

A) -14 and -9
B) -8 and -4
C) -3 and 4
D) 5 and 13

9

$$\frac{64x^2}{36} = 64$$

What is the negative solution to the given equation?

K Education & Technology

10

If $\frac{4}{9} = \frac{8}{3}m$, what is the value of m ?

A) $\frac{1}{6}$

B) $\frac{2}{3}$

C) $\frac{5}{6}$

D) 6

11

$$y + 2kx = kx^2 + 5$$

In the given equation, k is a constant. If $y = 23$ when $x = 3$, what is the value of k ?

A) -6

B) 3

C) 6

D) 9

12

$$f = p\left(\frac{(1+j)^n - 1}{j}\right)$$

The given equation relates the positive numbers f, j, n, and p. Which of the following correctly expresses p in terms of f, j, and n ?

A) $p = \frac{fj}{(1+j)^n - 1}$

B) $p = \frac{(1+j)^n - 1}{fj}$

C) $p = \frac{f - j}{(1+j)^n - 1}$

D) $p = fj + 1 - (1+j)^n$

13

If $\frac{m}{2n} = 2$, what is the value of $\frac{n}{2m}$?

A) $\frac{1}{8}$

B) $\frac{1}{4}$

C) $\frac{1}{2}$

D) 1

14

$$-4d = 3e - h$$

The given equation relates the numbers d, e, and h. Which equation correctly expresses d in terms of e and h ?

A) $d = \frac{-3e - h}{4}$

B) $d = -\frac{3e}{4} - h$

C) $d = 3e + \frac{h}{4}$

D) $d = \frac{h - 3e}{4}$

15

If $\frac{x}{6} = \frac{x + 12}{42}$, what is the value of $\frac{6}{x}$?

A) $\frac{1}{3}$

B) 2

C) 3

D) 6

16

$$(n-4)^2 = (n+4)^2$$

What value of n satisfies the given equation?

$n = 0$

K Education & Technology

17

$$\sqrt{x^2 - 25} = n$$

In the given equation, n is a positive constant. Which of the following is one of the solutions to the given equation?

A) $n + 5$
B) $\sqrt{n + 25}$
C) $\sqrt{n^2 + 5}$
D) $-\sqrt{n^2 + 25}$

$x^2 - 25 = n^2$

$x^2 = n^2 + 25$

$x = \pm\sqrt{n^2 + 25}$

18

If $3(x - 2y) - 3z = 0$, which of the following equations correctly expresses x in terms of y and z?

A) $\frac{2y + 3z}{3}$
B) $2y + z$
C) $y + 2z$
D) $6y + 3z$

$3x - 6y - 3z = 0$

$3x = 6y + 3z$

$x = 2y + z$

19

$$d = a\left(\frac{c + 1}{24}\right)$$

Doctors use Cowling's rule, defined by the equation shown, to determine the correct dosage d, in milligrams, of medication for a child based on the adult dosage a, in milligrams, and the child's age c, in years. Ben is a patient who is in need of a certain medication. If a doctor uses Cowling's rule to prescribe Ben a dosage that is half the adult dosage, what is Ben's age, in years?

A) 7
B) 9
C) 11
D) 13

20

$$\frac{x^2 - 9}{x - 3} = 0$$

Which value is a solution to the given equation?

A) 3
B) $\sqrt{3}$
C) $-\sqrt{3}$
D) -3

21

$$T = 2P\sqrt{\frac{L}{G}}$$

The given equation relates the positive real numbers G, L, P, and T. Which equation correctly expresses G in terms of L, P, and T?

A) $\frac{2PL}{T^2}$
B) $\frac{T^2}{4LP^2}$
C) $\frac{LT^2}{4P^2}$
D) $\frac{4LP^2}{T^2}$

22

$$x(x - 7) + 9(x - 7) = 0$$

What is the negative solution to the given equation?

K Education & Technology