8:05 | Solving Problems Using Equations

Name: _____ Class: _____

Examples

1 Write equations for the following.

  a The difference between m and 7 is 15.

$$m - 7 = 15$$

  b The quotient of x and 5 is 6.

$$\frac{x}{5} = 6$$

2 Write equations for the following, then solve them.

  a The sum of 3 times a number and 14 gives 50.

$$3n + 14 = 50$$
$$3n = 36$$
$$\therefore n = 12$$

  b If I add 9 to a number, then multiply by 5, the result is 100.

$$5(n + 9) = 100$$
$$5n + 45 = 100$$
$$5n = 55$$
$$\therefore n = 11$$

Exercise

1 Write equations for the following.

  a The sum of a and 5 equals 8.

  b The product of 7 and x is 42.

  c The quotient of k and 7 is 9.

  d The difference between y and 7 is 19.

  e The sum of $5q$ and 8 equals 47.

  f The product of 5 and c is −20.

  g The product of 3 and n, less 7, is 20.

  h A number w, minus 8, gives 26.

2 Write equations for the following, then solve them. (Use n for the number.)

  a If I subtract 9 from 3 times a number, the result is 27.

  b If I add 4 to a number, then multiply by 7, the result is 63.

  c Divide a number by 3, add 6, and the result is 13.

  d Double a number, subtract 3, and the result is 21.

  e The product of 5 with a number, add 8, gives 73.

  f Subtract 6 from a number, then multiply by 4, and the result is 56.

  g If I add 13 to 7 times a number, the result is 90.

  h When 22 is subtracted from a number, the result is −8.

  i The sum of a number and 8 is divided by 3, giving 10.

  j Add 24 to the product of 6 and a number, and the result is 45.

  k The difference between a number and 8 is −94.

  l The quotient of triple a number and 5 equals 15.

  m When the sum of 4 times a number and 12 is divided by 8, the result is 4.

8:05 Solving Problems Using Equations

1 a $a + 5 = 8$

b $7x = 42$

c $\dfrac{k}{7} = 9$

d $y - 7 = 19$

e $5q + 8 = 47$

f $5c = -20$

g $3n - 7 = 20$

h $w - 8 = 26$

2 a $3n - 9 = 27, n = 12$

b $7(n + 4) = 63, n = 5$

c $\dfrac{n}{3} + 6 = 13, n = 21$

d $2n - 3 = 21, n = 12$

e $5n + 8 = 73, n = 13$

f $4(n - 6) = 56, n = 20$

g $7n + 13 = 90, n = 11$

h $n - 22 = -8, n = 14$

i $\dfrac{n + 8}{3} = 10, n = 22$

j $6n + 24 = 45, n = 3.5$

k $n - 8 = -94, n = -86$

l $\dfrac{3n}{5} = 15, n = 25$

m $\dfrac{4n + 12}{8} = 4, n = 5$