Lesson 1-1

Example 1

Determine all the possible subsets of the set {3, 7}.

Solution

Each single element of {3, 7} is a subset: {3}, {7}. The set itself is a subset: {3, 7}. The null set is a subset:∅. So, {3, 7} has four subsets: {3},{7}, {3, 7}, ∅.

Example 2

Which of the values -5 and 6 is a solution of the equation $2x + 5 = 17$?

Solution

Substitute -5 for x in the equation.

$$\begin{aligned} 2x + 5 &= 2(-5) + 5 \\ &= -10 + 5 \\ &= -5 \end{aligned}$$

So -5 is not a solution.

Substitute 6 for x in the equation.

$$\begin{aligned} 2x + 5 &= 2(6) + 5 \\ &= 12 + 5 \\ &= 17 \end{aligned}$$

So 6 is a solution.

Example 3

Use mental math to solve the equation $x - 5 = 13$.

Solution

Think: Five subtracted from what number equals 13? You know that 18 - 5 = 13, so $x = 18$.

Example 4

FINANCE Dory's earnings equaled the sum of Jon's and twice Megan's earnings. Dory earned $112 and Jon earned $42. Using the equation $112 = 42 + 2x$ and {22, 35, 42} for x, find the amount Megan earned.

Solution

112 = 40 + 2*x*

Substitute:

22 for *x* in the equation.	35 for *x* in the equation.	42 for *x* in the equation.
112 = 42 + 2(22)	112 = 42 + 2(35)	112 = 42 + 2(42)
112 = 42 + 44	112 = 42 + 70	112 = 42 + 84
112 ☐ 86	112 = 112	112 ☐ 126

So Megan earned $35.