Algebra Word Problems Worksheets

1. Trevor and Marissa together have 26 T-shirts to sell. If Marissa has 6 fewer T-shirts than Trevor, find how many T-shirts Trevor has.

2. Barry's mountain bike weighs 6 pounds more than Andy's. If their bikes weigh 42 pounds altogether, how much does Barry's bike weigh?

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1. Trevor and Marissa together have 26 T-shirts to sell. If Marissa has 6 fewer T-shirts than Trevor, find how many T-shirts Trevor has.

Let t represent the number of T-shirts that Trevor has, and let $t - 6$ represent the number of T-shirts that Marissa has.

$$t + (t - 6) = 26$$
$$(t + t) + (-6) = 26$$
$$2t + (-6) = 26$$
$$2t + (-6) + 6 = 26 + 6 \qquad \text{\textit{If-then move: Addition property of equality}}$$
$$2t + 0 = 32$$
$$2t = 32$$
$$\frac{1}{2} \cdot 2t = \frac{1}{2} \cdot 32 \qquad \text{\textit{If-then move: Multiplication property of equality}}$$
$$1 \cdot t = 16$$
$$t = 16$$

Trevor has 16 T-shirts to sell, and Marissa has 10 T-shirts to sell.

2. Barry's mountain bike weighs 6 pounds more than Andy's. If their bikes weigh 42 pounds altogether, how much does Barry's bike weigh?

If we let a represent the weight in pounds of Andy's bike, then $a + 6$ represents the weight in pounds of Barry's bike.

$$a + (a + 6) = 42$$
$$(a + a) + 6 = 42$$
$$2a + 6 = 42$$
$$2a + 6 - 6 = 42 - 6 \qquad \text{\textit{If } 2a + 6 = 42 \text{, then } 2a + 6 - 6 = 42 - 6.}$$
$$2a + 0 = 36$$
$$2a = 36$$
$$\frac{1}{2} \cdot 2a = \frac{1}{2} \cdot 36 \qquad \text{\textit{If } 2a = 36 \text{, then } \frac{1}{2} \cdot 2a = \frac{1}{2} \cdot 36.}$$
$$1 \cdot a = 18$$
$$a = 18$$

Barry's Bike: $a + 6$

$$(18) + 6 = 24$$

Barry's bike weighs 24 pounds.