Math 172 – Section 2.3: Word Problems Worksheet

For the following word problems, write an expression for the second variable in terms of the first.

Example:

> Alice and Barbara each buy a new lawnmower. Alice gets a gas-powered one, while Barbara pays twice as much and gets a rechargeable electric mower.
>
> > let b = amount Alice pays for her lawnmower
> >
> > $2b$ = amount Barbara pays for her lawnmower

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1. Alice and Barbara each buy a new lawnmower. Alice gets a gas-powered one, while Barbara pays twice as much and gets a rechargeable electric mower.

   let b = amount Barbara pays for her lawnmower

2. Doug and Bob are both driving from Victoria to Courtenay. They leave at the same time, but Doug arrives in Courtenay half-an-hour earlier.

   let t = time it takes Doug to drive to Courtenay

3. Jennifer and Marlene are jogging to Starbucks for some coffee. Marlene gets there twice as fast as Jennifer does.

   let r = Jennifer's jogging speed

4. Jennifer and Marlene are jogging to Starbucks for some coffee. Marlene gets there twice as fast as Jennifer does.

   let t = Jennifer's time to jog to Starbucks

5. The length of a rectangle is three feet less than twice the width.

   let w = width of rectangle

6. Sandra and Jeff are shopping for scientific calculators. Sandra wishes to buy a graphing calculator whose original price is twice the price of the calculator Jeff wishes to buy. However, Sandra's calculator is on sale for 10% off.

   let x = cost of Jeff's calculator

7. Agnes is selling tickets to the Camosun Choristers concert. She sells twice as many student tickets as adult tickets.

   let s = number of student tickets

Solutions

1. $\frac{1}{2} b$ = amount Alice pays for her lawnmower

2. $t + \frac{1}{2}$ = time it takes Bob to drive to Courtenay

3. $2r$ = Marlene's jogging speed

4. $\frac{1}{2} t$ = Marlene's time to jog to Starbucks

5. $2w - 3$ = length of rectangle

6. $0.9(2x)$ = cost of Sandra's calculator

7. $\dfrac{s}{2}$ = number of adult tickets