B: Solving Two-Step Equations $ax+b=c$ Continued

Examples:

1. Sam is saving $850 to buy a sound system. If he doubles the amount he has saved he will have $25 more than he needs. The situation can be modelled by $2s-25=850$, where s represents the amount he saved so far.

→ How much money has Sam saved so far?

$2s-25=850$

$2s-25 \quad = 850$
$+25 \quad +25$

$2s = 875$

$\frac{2s}{2} = \frac{875}{2}$

$s = \$437.50$ Sam has saved $437.50 so far.

2. The percent of students who choose an iphone as their favourite type of phone is 70%. This percent is 5% more than four times the percent who choose the next popular brand.

a) Let x represent the next popular brand. What equation models this problem.

iphone % is 5% more than 4 times the next popular.

$70\% = 5\% + 4x$

$70 = 5 + 4x$

b) Solve the equation.

$70 = 5 + 4x$

$70 = 5 + 4x$
$-5 \quad -5$

$65 = 4x$

$\frac{65}{4} = \frac{4x}{4}$

$16.25\% = x$ — 16.25% of students choose the next most popular brand.

3. A living room's length is 2m less than three times its width. The room has a length of 8m. Write and solve an equation to determine the width of the living room.

length is 2m less than three times width
$\updownarrow$
$8m = -2 + 3x$

x – width

$8 = 3x - 2$

$8 = 3x - 2$
$+2 \quad +2$

$10 = 3x$

$\frac{10}{3} = \frac{3x}{3}$

$3.\overline{3}\,m = x$ — The width is $3.\overline{3}$ m.

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