

$$84 \quad ax \neq b+cx, \quad ax+b=cx+d \\ a(bx+c) = d(cx+f)$$

Ex: 1  $ax = b+cx$

A jar has 30 fewer quarters than dimes. The value of dimes equals the value of quarters. How many dimes are there?

$$\begin{aligned} 0.10d &= 0.25q & q &= d - 30 \\ 0.10d &= 0.25(d-30) & &= 50 - 30 \\ 0.10d &= 0.25d - 7.5 & &= 20 \\ -0.10d & -0.10d & & \\ 0 &= 0.15d - 7.5 & 0.10d &= 0.25q \\ +7.5 & & +7.5 & 0.10(50) = 0.25(20) \\ 7.5 &= 0.15d & 5 &= 5 \\ \underline{0.15} & \quad \underline{0.15} & & \\ 50 &= d & & \end{aligned}$$

There are 50 dimes.

SYK: In a jar, there are 20 more nickels than quarters. The value of nickels equals the value of quarters. How many quarters are in the jar.

Example 2:  $ax+b=cx+d$

Alain has \$35.50 and is saving \$4.25/week.

Eva has \$24.25 and is saving \$5.50/week.

In how many weeks will they have the same amount?

$$A = E \quad 35.50 + 4.25w = 24.25 + 5.50w$$

$$35.50 + 4.25(9) = 24.25 + 5.50(9) \quad -4.25w \quad -4.25w$$

$$35.50 + 38.25 = 24.25 + 49.50 \quad 35.50 = 24.25 + 1.25w$$

$$\$73.75 = \$73.75 \quad -24.25 \quad -24.25$$

$$11.25 = 1.25w$$

$$\underline{1.25} \quad \underline{1.25}$$

$$9 = w$$

They will have the same amount saved in 9 weeks.

SYK 2: An internet cafe charges \$1 for 15 minutes and \$0.20/page of printing. A second cafe charges \$2/hour and \$0.25/page of printing. How many pages will you need to print for both cafes to have the same fee for 1 hour?

Ex 3:  $a(bx+c) = d(cx+f)$

$$\text{Solve } 6 \left[ \frac{1}{3}(2x-1) = \frac{1}{2}(3x+1) \right] 6$$

$$\frac{6}{3} \quad \frac{6}{2}$$

$$2(2x-1) = 3(3x+1)$$

$$4x - 2 = 9x + 3$$

$$-4x \quad -4x$$

$$-2 = 5x + 3$$

$$-3 \quad -3$$

$$-5 = 5x$$

$$\underline{5} \quad \underline{5}$$

$$-1 = x$$

$$\frac{1}{3}(2(-1)-1) = \frac{1}{2}(3(-1)+1)$$

$$\frac{1}{3}(-2-1) = \frac{1}{2}(-3+1)$$

$$\frac{1}{3}(-3) = \frac{1}{2}(-2)$$

$$\frac{-3}{3} = \frac{-2}{2}$$

$$-1 = -1$$

$$\text{SYK \# 3: } \frac{3f+1}{4} = \frac{3+2f}{2}$$

