

Ch. 2.7 Solving Proportions

* Proportion - equation that states that two ratios are equal

$$\frac{a}{b} = \frac{c}{d}, \text{ where } b \neq d \neq 0$$

* ad & bc are called cross products

* a & d are called extremes

* b & c are called the means

Examples

① $\frac{x}{7} = \frac{4}{5}$

$$\begin{aligned} 7(4) &= 5(x) \\ 28 &= 5x \\ 5 & \end{aligned}$$

$$x = 5\frac{3}{5}$$

② $\frac{b-8}{5} = \frac{b+3}{4}$

$$\begin{aligned} 4(b-8) &= 5(b+3) \\ 4b - 32 &= 5b + 15 \\ +32 & \quad +32 \end{aligned}$$

$$\begin{aligned} 4b &= 5b + 47 \\ -5b & \quad -5b \\ -1b &= 47 \\ b &= -47 \end{aligned}$$

* To solve Proportions:

① cross multiply

② solve for the missing part

* Review Problem 4 on pg. 126

* Got it? #4 on pg. 126

$$\frac{80z}{97mg} = \frac{120z}{xmg}$$

$$8(x) = 97(12)$$

$$\frac{8x = 1164}{18}$$

$$x = 145.5mg$$

2.7 pg. 127 #12-34 even 35-37 all

$$(12) \quad \frac{3}{4} = \frac{x}{5}$$

$$4x = 15$$

$$x = 3\frac{3}{4}$$

$$(20) \quad \frac{3}{8} = \frac{30}{m}$$

$$3m = 8(30)$$

$$3m = 240$$

$$m = 80$$

$$(14) \quad \frac{3}{16} = \frac{x}{12}$$

$$3(12) = 16x$$

$$36 = 16x$$

$$x = 2\frac{1}{4}$$

$$(22) \quad \frac{-9}{b} = \frac{5}{6}$$

$$-9(6) = 5b$$

$$-54 = 5b$$

$$b = -10\frac{4}{5}$$

$$(16) \quad \frac{x}{120} = \frac{1}{24}$$

$$24x = 120$$

$$x = 5$$

$$(24) \quad \frac{-3}{4} = \frac{m}{22}$$

$$-3(22) = 4m$$

$$-66 = 4m$$

$$m = -16\frac{1}{2}$$

$$(18) \quad \frac{3}{v} = \frac{8}{13}$$

$$3(13) = 8v$$

$$39 = 8v$$

$$v = 4\frac{7}{8}$$

$$\textcircled{26} \quad \frac{a-2}{9} = \frac{2}{3}$$

$$3(a-2) = 18$$

$$3a - 6 = 18$$

$$+6 \quad +6$$

$$3a = 24$$

$$\textcircled{a=8}$$

$$\textcircled{32} \quad \frac{q+2}{5} = \frac{2q-11}{7}$$

$$7(q+2) = 5(2q-11)$$

$$7q+14 = 10q-55$$

$$+55 \quad +55$$

$$7q+69 = 10q$$

$$69 = 3q$$

$$\textcircled{q=23}$$

$$\textcircled{28} \quad \frac{3}{7} = \frac{c+4}{35}$$

$$3(35) = 7(c+4)$$

$$105 = 7c + 28$$

$$77 = 7c$$

$$\textcircled{c=11}$$

$$\textcircled{34} \quad \frac{1 \text{ hr.}}{14 \text{ flowers}} = \frac{x \text{ hr.}}{35 \text{ flowers}}$$

$$14x = 35$$

$$\textcircled{x=2.5 \text{ hours}}$$

$$\textcircled{30} \quad \frac{7}{k-2} = \frac{5}{8}$$

$$7(8) = 5(k-2)$$

$$56 = 5k - 10$$

$$66 = 5k$$

$$\textcircled{k=13 \frac{1}{5}}$$

$$\textcircled{35} \quad \frac{2 \text{ doz.}}{5 \text{ centrep.}} = \frac{x}{20 \text{ cent.}}$$

$$5x = 40$$

$$\textcircled{x=8 \text{ dozen}}$$

$$\textcircled{36} \quad \frac{5 \text{ lb}}{14 \text{ people}} = \frac{x}{49 \text{ people}}$$

$$5(49) = 14x$$

$$245 = 14x$$

$$\textcircled{x=17 \frac{1}{2} \text{ lb}}$$

37

$$\frac{3}{30} = \frac{x}{140}$$

$$30x = 3(140)$$

$$30x = 420$$

$x = 14$ left-handed
people

1957-1958

1957-1958