

1a.) $\frac{18 \text{ runs}}{4 \text{ games}} \div 2 = \frac{9 \text{ runs}}{2 \text{ games}} = 4.5 \text{ runs per game}$
 simplified
 or 18:14 or 9:2

b.) $\frac{\$450}{5 \text{ days}} \div 5 = \frac{\$90}{1 \text{ day}}$ simplified

c.) $\frac{30 \text{ slices}}{8 \text{ kids}} \div 2 = \frac{15 \text{ slices}}{4 \text{ kids}} = 3.75 \text{ slices per kid}$
 simplified

2a.) blue: yellow

example -

* yellow: red
15:14

- No $\Rightarrow$ (hint: look for a number that has a factor of 4 and a number with a factor of 5)

* blue/green - factor of 4

* yellow - factor of 5

So... green: yellow — Not solution

$\div 3 \left(\begin{array}{c} 16 : 15 \end{array} \right) \div 3$

not possible: 5
even
answer

or

$\frac{16 \div 3}{15 \div 3} = \frac{5.3}{5}$
goal

2 a.) continue...

$$\begin{array}{c} \boxed{\text{blue: yellow}} \\ * \end{array}$$

$$12 : 15 \quad \text{or} \quad 4 : 5$$

$\div 3 \swarrow \quad \searrow \div 3$
 $4 : 5$

$$\frac{12 \div 3}{15 \div 3} = \frac{4}{5}$$

↑
must divide both by
same number

b.) 28 pieces

Plan = #1 given 140 pieces as total, so
must find total candy in 1 bag.

$$\begin{array}{r} 15 \\ 14 \\ 12 \\ 16 \\ +13 \\ \hline 70 \text{ total} \end{array}$$

#2: set up equivalent ratio
(also a proportion)

$$\frac{14}{70} = \frac{28}{140} = \frac{\text{red}}{\text{total}}$$

#3 Solve

$$\frac{14}{70} \xrightarrow{\times 2} \frac{28}{140}$$

↑ *2
original
bag

c.) Set up a proportion or equivalent
fraction:

4 green
M&Ms

$$\frac{\text{blue}}{\text{green}} = \frac{\text{original } 12}{16} = \frac{\text{handful } 3}{4}$$

Solve: $\frac{12}{16} = \frac{3}{4}$

$\div 4 \swarrow \quad \searrow \div 4$
4 ← answer

3.) [redacted] Hint: ^{step 1:} Simplify ratio given —

$$\frac{12 \div 2}{42 \div 2} = \frac{6}{21}$$

check in ratio table for any of these numbers

<u>24</u>	2	<u>6</u>	<u>4</u>	18
84	<u>7</u>	21	14	<u>63</u>

Arrows and multipliers:
 - 24 to 6: $\div 4$
 - 6 to 4: $\div 2$
 - 4 to 18: $\times 3$
 - 18 to 63: $\times 3$
 - 63 to 14: $\div 3$
 - 14 to 7: $\div 2$
 - 7 to 24: $\times 12$
 - 24 to 84: $\times 3$
 - 84 to 21: $\div 4$

^{step 2:} divide or multiply to fill in others

Answers in red

4.) $\frac{6 \text{ in}}{1 \text{ sec}} \times \frac{60 \text{ sec}}{1 \text{ min}} = \frac{360 \text{ in}}{1 \text{ min}}$ next convert in $\rightarrow$ feet

"per sec" means

* hint go for eliminating: convert one type of measuring at a time!

* know your goal: $\frac{\text{feet}}{\text{min}}$

$$\frac{360 \text{ in}}{1 \text{ min}} \times \frac{1 \text{ feet}}{12 \text{ in}} \Rightarrow \frac{360 \text{ feet} \div 12}{12 \text{ min} \div 12} = \frac{30 \text{ ft}}{1 \text{ min}}$$

Answer: $\boxed{\frac{30 \text{ ft}}{1 \text{ min}}}$

5.)

$$\frac{\$13.50}{1 \text{ pound}} = \frac{\$x}{5 \text{ pounds}} \quad \boxed{\$67.50}$$

"per pound" means work

$$\frac{\$13.50}{1 \text{ lb}} = \frac{x}{5 \text{ lbs}}$$

*5 (from 1 lb to 5 lbs)
*5 (from \$13.50 to \$x)

Sidework:

$$\begin{array}{r} 13.50 \\ * 5 \\ \hline 67.50 \end{array}$$

$$\frac{13.50}{1} = \frac{67.50}{5}$$

$$6a.) \frac{\$16}{5 \text{ in}} = \frac{\$40}{a}$$

Method 1: Cross

$$\frac{16}{5} = \frac{40}{a}$$

$$\frac{16a}{16} = \frac{200}{16}$$

$$\boxed{a = 12.5} \text{ inches}$$

#6 can solve by cross multiply or $* \div$ compare

Method 2:

$$\frac{16}{5} = \frac{40}{a}$$

$$\begin{array}{r} 2.5 \\ * 16 \overline{) 40.00} \\ \underline{-32} \\ 80 \\ \underline{-80} \\ 0 \end{array}$$

So

$$\frac{16}{5} = \frac{40}{a}$$

$\div 2.5$ (from 40 to 16)
 $\times 2.5$ (from 5 to a)

(6b.)

$$\frac{72 \text{ beats}}{20 \text{ sec}} = \frac{b}{120 \text{ sec}}$$

Method 1: Cross Multiply

$$\frac{72}{20} \times \frac{b}{120}$$

$$\frac{8640}{20} = \frac{20b}{20}$$

$$\boxed{432 = b}$$

beats

or

Method 2

$$\frac{72}{20} = \frac{b}{120}$$

*6

Sidework:

$$\begin{array}{r} 72 \\ * 6 \\ \hline 432 \end{array}$$

$$(6c.) \quad \frac{\$250}{6 \text{ hr}} = \frac{\$75}{C}$$

Method 1: Cross

$$\frac{250}{6} \times \frac{75}{C}$$

$$\frac{250C}{250} = \frac{450}{250}$$

$$\boxed{C = 1.8 \text{ hr}}$$

Sidework

$$\begin{array}{r} 1.8 \\ 250 \overline{) 450.00} \\ \underline{-250} \\ 2000 \\ \underline{-2000} \\ 0 \end{array}$$

or

Method 2

$$\frac{250}{6} = \frac{75}{C}$$

3.33 or $3\frac{1}{3}$

$$\begin{array}{r} 75 \overline{) 250.00} \\ \underline{-225} \\ 250 \\ \underline{*225} \\ 250 \end{array}$$

So...

$$6 * 3\frac{1}{3} = \frac{6 * 10}{1 \quad 3}$$