L34 Proportions

$\frac{1}{2} \times \frac{3}{3} = \frac{3}{6}$

2 equal ratios

- if cross products are equal
- if there is a common factor

$\frac{1}{2} = \frac{3}{6}$

$3 \cdot 2 = 1 \cdot 6$

$6 = 6$

Nora is paid $12 an hour. Is her pay proportional to the number of hours she works?

Hr.	$	$\frac{\$}{HR}$
1	12	$\frac{12}{1}$
2	24	$\frac{24}{2}$
3	36	$\frac{36}{3}$
4	48	$\frac{48}{4}$

$\frac{12}{1}$

Nelson has a paper route. If he works by himself the job takes 60 minutes. If he splits the route with a friend, it takes 30 minutes. If two friends help, the job takes 20 minutes. Is the amount of time it takes to complete the route proportional to the number of people working?

p	t	$\frac{t}{p}$
1	60	$\frac{60}{1}$
2	30	$\frac{30}{2}$
3	20	$\frac{20}{3}$

$\frac{15}{1}$

$\frac{15}{1} \neq \frac{60}{1}$

$\frac{\text{time}}{\text{people}}$ not proportion

$\frac{60}{1} \times \frac{20}{3}$

$20 \neq 180$

$\frac{24}{m} = \frac{8}{5}$

$\frac{24}{m} = \frac{8 \times 3}{5 \times 3}$

$8m = 24(5)$

$8m = 120$

$\frac{8m}{8} = \frac{120}{8}$

$m = 15$

If the ratio of dogs to cats is 3 to 2, how many dogs are there if there are 16 cats?

	R	A.C.
dogs	3 ×8	d
cats	2 ×8	16

$\frac{3}{2} = \frac{d}{16}$

$2d = 3(16)$

$2d = 48$

$d = 48 \div 2$

$d = 24$ dogs

If the ratio of boys to girls is 3 to 12, how many girls are there if there a 4 boys?

	R	A.C.
b	3	4
g	12	g

$3g = 4(12)$

$3g = 48$

$g = 48 \div 3$

$g = 16$ girls

L34 pset all

cinco, siete - 14, veintiseis, 27