

M-A1 Algebra 1 Week 19 2/13

Ratios \rightarrow Rational \rightarrow number able to be put into a fraction

Fraction = $\frac{\text{part}}{\text{whole}}$

fraction in-person: $\frac{9 \div 3}{12 \div 3} = \boxed{\frac{3}{4}}$

Ratio = part : part

ratio in-person : online

in-person : 9
online : 3

$\frac{9}{3} : \frac{3}{3}$

3 : 1

Dogs : 24 cats : 16

$\frac{24}{8} : \frac{16}{8}$

$\boxed{3 : 2}$

Dog fraction $\frac{24}{40} = \frac{3}{5}$

Cat fraction $\frac{16}{40} = \frac{2}{5}$

Super Bowl

Chiefs + 600

Bills + 700

49ers + 800

Bengals + 900

\$100 \rightarrow \$600

Bets: $\frac{\$100}{\$600} = \frac{\$800}{X}$

Profit: $\frac{\$600}{\$100} = \frac{X}{\$800}$

$\frac{(\$600)(\$800)}{\cancel{\$100}} = \boxed{\$4800}$

Chiefs + 600
 Bills + 700
 49ers + 800
 Bengals + 900

\$100 bet \$900 profit

$$\text{Bet} \rightarrow \boxed{\$100} = \frac{\$3,000}{X}$$

$$\text{Profit} \rightarrow \cancel{\$900}$$

$$\frac{(\$900)(\$3,000)}{\cancel{\$100}} = \boxed{\$27,000}$$

Steelers + 5500

$$\text{Bet} \rightarrow \frac{\$100}{\cancel{\$1,000,000}} = \frac{X}{\cancel{5500}}$$

$$\text{Profit} \rightarrow \boxed{5500}$$

$$\frac{(\$100)(\$1,000,000)}{\cancel{5500}} = \$18,181.91$$

$$\frac{16}{24} = \frac{X}{15}$$

$$\boxed{(16)(15)} = \boxed{24X}$$

$$\frac{240}{24} = \frac{24X}{24}$$

$$\boxed{10 = X}$$

$$(7)(8) = 4(X-8)$$

$$56 = 4X - 32$$

$$+32 \quad \quad +32$$

$$\frac{88}{4} = \frac{4X}{4}$$

$$\boxed{22 = X}$$

$$\frac{7}{X-8} = \frac{4}{8}$$

$$1.) \frac{12}{20} = \frac{X}{50}$$

$$\frac{20X}{20} = \frac{600}{20}$$

$$\boxed{X = 30}$$

$$2.) \frac{5}{4} = \frac{n-4}{3}$$

$$(5)(3) = 4(n-4)$$

$$15 = 4n - 16$$
$$+16 \quad +16$$

$$\frac{31}{4} = \frac{4n}{4}$$

$$\boxed{n = \frac{31}{4}}$$

$$3.) \frac{7}{x+6} = \frac{5}{x+8}$$

$$7(x+8) = 5(x+6)$$

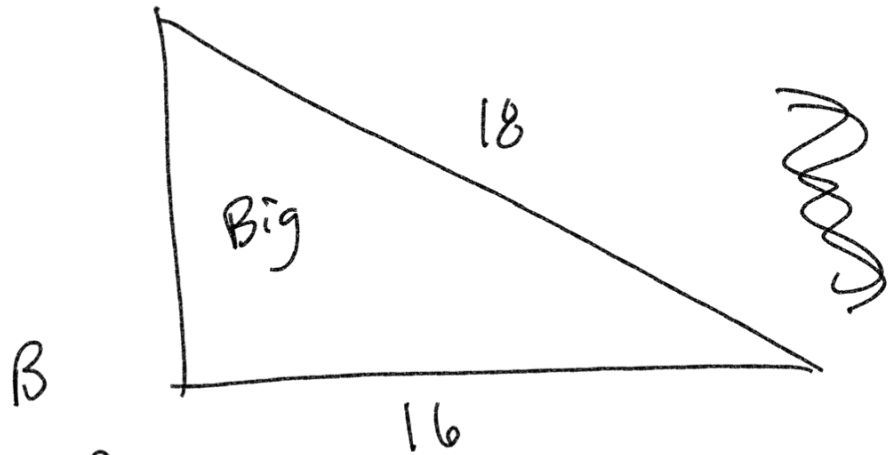
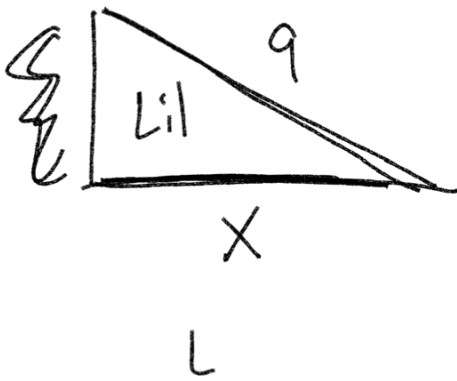
$$\boxed{7x} + 56 = 5x + 30$$
$$-5x \quad -5x$$

$$2x + 56 = 30$$
$$-56 \quad -56$$

$$\frac{2x}{2} = \frac{-26}{2}$$

$$\boxed{X = -13}$$

similar



$$\frac{\text{Base Lil}}{\text{Hyp Lil}} = \frac{\text{Base Big}}{\text{Hyp Big}}$$

$$\frac{X}{9} = \frac{16}{18}$$

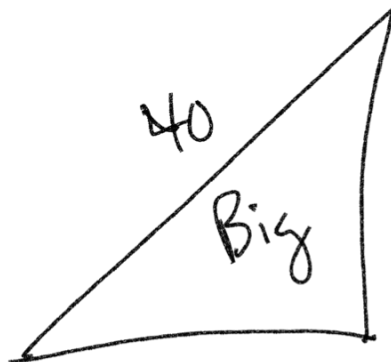
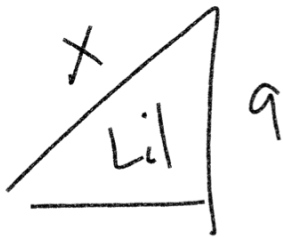
$$(16)(9) = 18X$$

$$\frac{144}{18} = \frac{18X}{18}$$

$$\frac{\text{Base L}}{\text{Base B}} = \frac{\text{Hyp L}}{\text{Hyp B}}$$

$$\frac{X}{16} = \frac{9}{18}$$

$$X = 8$$



$$\frac{\text{Hyp L}}{\text{Height L}} = \frac{\text{Hyp B}}{\text{Height B}}$$

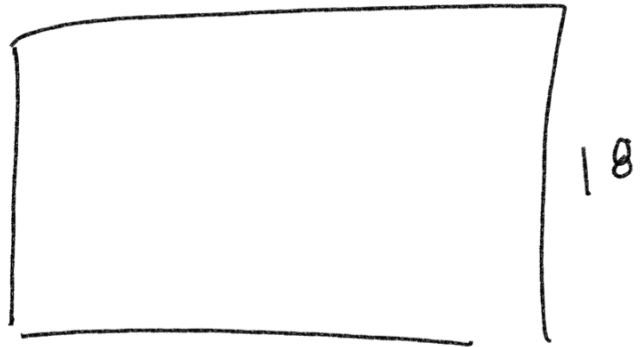
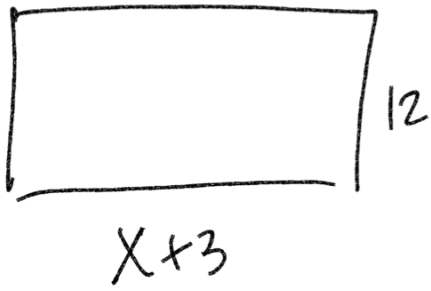
$$\frac{X}{9} = \frac{40}{36}$$

36

$$36X = (40)(9)$$

$$\frac{36X}{36} = \frac{360}{36}$$

$$X = 10$$



$$\frac{12}{X+3} \neq \frac{18}{2x+1}$$

$$12(2x+1) = 18(x+3)$$

$$24x + 12 = 18x + 54$$

$$-18x \quad -18x$$

$$6x + 12 = 54$$

$$-12 \quad -12$$

$$\frac{6x}{6} = \frac{42}{6}$$

$$x = 7$$