

## 3.2

- (ex) A school has 300 students and 150 teachers.  
So this school has a  $\frac{300}{150} = \frac{2}{1}$  so a 2 to 1 student-teacher ratio.  
This means that there is 1 teacher for every 2 students.

Proportions - two ratios which are equal.

- (ex) ratio 4:2 and ratio 2:1

Cross-Product

$$\text{If } \frac{a}{b} = \frac{c}{d} \text{ then } a \cdot d = b \cdot c$$

(ex)  $\frac{4}{2} = \frac{2}{1}$   
 $\frac{4}{2} \times \frac{2}{1} \cdot 4 \cdot 1 = 2 \cdot 2$

Can use this to solve for unknowns.

- (ex) I tell you  $\frac{5}{4} = \frac{15}{x}$ . Find x?

$$\frac{5}{4} \times \frac{15}{x}$$

$$5x = 4 \cdot 15$$

$$5x = 60$$

$$\boxed{x = 12}$$

- (ex) Our class has 18 males and 12 females. ARCC has 300 males. How many females at ARCC (assume same ratio)

$$\frac{18}{12} = \frac{300}{x}$$

$$18x = 3600 \rightarrow \boxed{x = 200}$$

OR  $\frac{12}{18} = \frac{x}{300}$

$$3600 = 18x \rightarrow \boxed{x = 200}$$