

## RATE AND RATIO

Form 2 Regular Course  
Vol 1

### Part 2 - Ratio of 2 unknowns

4. (a)  $a:b=7:2$

(b)  $2a+2b=3b-3a$

$$5a = b$$

$$a:b=1:5$$

(c)  $\frac{a}{2} = \frac{5b}{6}$

$$6a = 10b$$

$$a:b=5:3$$

(d)  $\frac{a+b}{b} = \frac{6}{5}$

$$5a+5b=6b$$

$$5a = b$$

$$a:b=1:5$$

(e)  $\frac{10b}{6a} = 2$

$$10b = 12a$$

$$a:b=5:6$$

(f)  $\frac{a+1}{a} = \frac{b+3}{b}$

$$ab+b=ab+3a$$

$$b = 3a$$

$$a:b=1:3$$

5. (b)  $2a = 5b$   
 $\frac{1}{a} : \frac{1}{b} = 2:5$

(c)  $\frac{2a}{3b} = \frac{10}{21}$   
 $42a = 30b$   
 $\frac{1}{a} : \frac{1}{b} = 7:5$

(d)  $\frac{a+b}{a+2b} = \frac{2}{3}$   
 $3a+3b = 2a+4b$   
 $a = b$   
 $\frac{1}{a} : \frac{1}{b} = 1:1$

**Part 3 - Ratio of 3 unknowns**

1. (a)  $\frac{b}{c} = \frac{5}{2} = \frac{15}{6}$      $\frac{a}{b} = \frac{4}{3} = \frac{20}{15}$   
 $a:b:c = 20:15:6$

(b)  $\frac{a}{b} = \frac{4}{3}$      $\frac{b}{c} = \frac{3}{5}$   
 $a:b:c = 4:3:5$

(c)  $\frac{a}{b} = \frac{2}{3} = \frac{10}{15}$     and     $\frac{b}{c} = \frac{5}{4} = \frac{15}{12}$   
 $a:b:c = 10:15:12$

(d)  $\frac{a}{a+b} = \frac{4}{7}$      $\frac{a+c}{c} = 3$   
 $7a = 4a + 4b$      $a + c = 3c$   
 $3a = 4b$      $a = 2c$   
 $\frac{a}{b} = \frac{4}{3}$      $\frac{a}{c} = \frac{2}{1} = \frac{4}{2}$   
 $a:b:c = 4:3:2$

(e)  $\frac{a}{b} = \frac{2}{3} = \frac{6}{9}$      $\frac{a}{c} = \frac{6}{7}$   
 $a:b:c = 6:9:7$

(f)  $\frac{b}{a} = \frac{3}{4} = \frac{15}{20}$      $\frac{a}{c} = \frac{5}{6} = \frac{20}{24}$   
 $a:b:c = 20:15:24$

$$(g) \quad 6a = 5b \quad 5b = 4c$$

$$\frac{a}{b} = \frac{5}{6} = \frac{10}{12} \quad \frac{b}{c} = \frac{4}{5} = \frac{12}{15}$$

$$a:b:c = 10:12:15$$

$$(h) \quad 3a = 2b \quad 7b = 3c$$

$$\frac{a}{b} = \frac{2}{3} \quad \frac{b}{c} = \frac{3}{7}$$

$$a:b:c = 2:3:7$$

$$(i) \quad 4b = 3a \quad 15c = 16b$$

$$\frac{a}{b} = \frac{4}{3} = \frac{20}{15} \quad \frac{b}{c} = \frac{15}{16}$$

$$a:b:c = 20:15:16$$

$$2. (b) \quad \frac{1}{a} : \frac{1}{b} = 8:5 \quad \frac{1}{b} : \frac{1}{c} = 5:6$$

$$\frac{1}{a} : \frac{1}{b} : \frac{1}{c} = 8:5:6$$

$$(c) \quad \frac{1}{a} : \frac{1}{b} = 4:5 = 8:10 \quad \frac{1}{b} : \frac{1}{c} = 2:5 = 10:25$$

$$\frac{1}{a} : \frac{1}{b} : \frac{1}{c} = 8:10:25$$

$$(d) \quad \frac{1}{a} : \frac{1}{b} = 3:5 = 6:10 \quad \frac{1}{b} : \frac{1}{c} = 2:9 = 10:45$$

$$\frac{1}{a} : \frac{1}{b} : \frac{1}{c} = 6:10:45$$

$$3. (a) \quad \frac{1}{a} : \frac{1}{b} = 8:9$$

$$(b) \quad \frac{1}{b} : \frac{1}{c} = 5:8$$

$$(c) \quad \frac{1}{a} : \frac{1}{b} = 8:9 = 40:45 \quad \frac{1}{b} : \frac{1}{c} = 5:8 = 45:72$$

$$\frac{1}{a} : \frac{1}{b} : \frac{1}{c} = 40:45:72$$