

# Revision 1: Ratio, Proportion and Proportionality

Name:	Class:	Date:
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Mark	/ 33	%
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1) Simplify [2]

a)  $35 : 25$

b)  $6 : 4 : 16$

2) Write in the form  $1 : n$ , giving your answer as a decimal rounded to 3 significant figures [1]

$13 : 7$

3) Write as a fraction in its lowest terms [1]

$63 : 81$

4) Share 44 balls between Melissa and Gabriel in the ratio  $6 : 5$  [1]

5) Divide 36 m in the ratio  $9 : 2 : 1$  [1]

6) A bowl of fruit punch is made by mixing 3 parts orange juice to 8 parts mango juice. [1]

How much mango juice is needed to make 715 ml of fruit punch?

7) A recipe requires 7 cups of flour to make 8 cookies. [1]

How many cups of flour will be needed to make 48 cookies?

8) A recipe for pastry requires 50g of butter to make 100g of pastry. [1]

How many grams of butter will be needed to make 25g of pastry?

- 9) If 1 person takes 7 days to pick the pears from a tree, how many days will it take 7 people to do the same job? [1]
- 10) If 6 people take 10 days to pick the oranges from a tree, how many days will it take 5 people to do the same job? [1]
- 11) The distance between two points on a map is 9.5 cm. The scale of the map is 1:5000. [1]  
 Find the actual distance between the two points in km. [1]
- 12) If  $y$  is proportional to  $x$ , find an equation that connects them given that [1]  
 $y = 42$  when  $x = 6$
- 13) If  $r \propto p$ , find an equation that connects them given that  $r = 3$  when  $p = 9$  [1]
- 14) If  $c$  varies as  $b$  and  $c = 18$  when  $b = 3$ . Find the value of  $c$  given  $b = 6$  [1]
- 15) If  $d$  is proportional to  $c$  and  $d = 20$  when  $c = 8$ . Find the value of  $d$  given  $c = 10$  [1]
- 16) If  $r$  varies as  $p$  and  $r = 12$  when  $p = 4$ . Find the value of  $p$  given  $r = 24$  [1]
- 17) Given  $z$  varies as  $y$ . Complete the following table [1]

$y$	1	6		10
$z$	9		72	

18) If  $c \propto b$  and  $c = 9$  when  $b = 3$ . Find [1]

a) the formula for  $c$  in terms of  $b$

b) the value of  $c$  given  $b = 14$

c) the value of  $b$  given  $c = 36$

19) If  $d$  varies directly as  $c^2$  and  $d = 294$  when  $c = 7$ . Find the formula for  $d$  in terms of  $c$  [1]

20) If  $t$  varies as the square of  $s$  and  $t = 32$  when  $s = 4$ . Find the value of  $t$  given  $s = 7$  [1]

21) If  $t$  varies directly as  $s^2$  and  $t = 36$  when  $s = 3$ . Find [1]

a) the formula for  $t$  in terms of  $s$

b) the value of  $t$  given  $s = 7$

c) the value of  $s$  given  $t = 256$

22) If  $x$  is proportional to the cube of  $w$  and  $x = 108$  when  $w = 3$ . Find the formula for  $x$  in terms of  $w$  [1]

23) If  $r$  varies directly as the cube of  $p$  and  $r = 48$  when  $p = 2$ . Find the value of  $r$  given  $p = 5$  [1]

24) If  $r$  varies directly as  $p^3$  and  $r = 128$  when  $p = 4$ . Find [1]

a) the formula for  $r$  in terms of  $p$

b) the value of  $r$  given  $p = 6$

c) the value of  $p$  given  $r = 1024$

25) If  $r$  varies directly as  $\sqrt{p}$  and  $r = 4$  when  $p = 4$ . Find the formula for  $r$  in terms of  $p$  [1]

26) If  $x$  varies directly as  $\sqrt{w}$  and  $x = 35$  when  $w = 25$ . Find the value of  $w$  given  $x = 56$  [1]

27) If  $d$  varies inversely as  $c$  and  $d = 7$  when  $c = 7$ . Find the formula for  $d$  in terms of  $c$  [1]

28) If  $t$  is inversely proportional to  $s$  and  $t = 16$  when  $s = 1$ . Find [1]

a) the formula for  $t$  in terms of  $s$

b) the value of  $t$  given  $s = 4$

c) the value of  $s$  given  $t = 2$

29) If  $r$  varies inversely as the square of  $p$  and  $r = 5$  when  $p = 2$ . Find the value of  $p$  given  $r = \frac{5}{9}$  [1]

30) If  $b$  is inversely proportional to  $\sqrt{a}$  and  $b = 6$  when  $a = 25$ . Find the formula for  $b$  in terms of  $a$  [1]

31) If  $n$  is inversely proportional to  $\sqrt{m}$ . Complete the following table

[1]

$m$	16	25	
$n$	2		8

32) If  $n$  is inversely proportional to the root of  $m$  and  $n = 8$  when  $m = 16$ . Find

[1]

a) the formula for  $n$  in terms of  $m$

b) the value of  $n$  given  $m = 25$

c) the value of  $m$  given  $n = 3\frac{1}{5}$

## Solutions for the assessment Revision 1: Ratio, Proportion and Proportionality

1) a)  $7 : 5$

b)  $3 : 2 : 8$

2)  $1 : 0.538$

3)  $\frac{7}{9}$

4) Melissa gets 24 balls and Gabriel gets 20 balls

5)  $27 \text{ m} : 6 \text{ m} : 3 \text{ m}$

6) 520 ml

7) 42 cups of flour

8) 12.5 g

9) 1 day

10) 12 days

11) 0.475 km

12)  $y = 7x$

13)  $r = 0.33p$  or  $r = \frac{1}{3}p$

14) 36

15) 25

16) 8

17)  $y$  value is 8 and the  $z$  values are 54 and 90

18) a)  $c = 3b$  b) 42 c) 12

19)  $d = 6c^2$

20) 98

21) a)  $t = 4s^2$  b) 196 c) 8

22)  $x = 4w^3$

23) 750

24) a)  $r = 2p^3$  b) 432 c) 8

25)  $r = 2\sqrt{p}$

26) 64

27)  $d = \frac{49}{c}$

28) a)  $t = \frac{16}{s}$  b) 4 c) 8

29) 6

30)  $b = \frac{30}{\sqrt{a}}$

31)  $m$  value is 81 and  $n$  value is  $1\frac{3}{5}$

32) a)  $n = \frac{32}{\sqrt{m}}$  b)  $6\frac{2}{5}$  c) 100