

p. 40 # 7-10

7. $3, 12, 48, 5y+7$ find value of y
 $r=4$

$$\begin{aligned} \text{so: } 48 \cdot 4 &= 5y+7 \\ 192 &= 5y+7 \\ 185 &= 5y \\ 37 &= y \end{aligned}$$

8. first 3 terms from graph: 16, 12, 9
 $r = \frac{12}{16} = \frac{3}{4}$ (or 0.75)

general term: $t_n = 16\left(\frac{3}{4}\right)^{n-1}$ or $t_n = 16(0.75)^{n-1}$

Note: It's okay to use a decimal instead of a fraction unless it is a repeating decimal - then the fraction is better.

9. ball dropped from 3.0 m
 each bounce is 75% of the previous height

a) $r = 0.75$
 $t_1 = 3 \text{ m (or 300 cm)}$

b) $t_n = 3(0.75)^{n-1}$

c) after 6 bounces it reaches its 7th height so t_7
 $t_7 = 3(0.75)^{7-1}$
 $t_7 = 3(0.177979)$ use lots of decimal places!!
 $t_7 = 0.534 \text{ m}$ round at the answer
 or 53.4 cm

d) 40cm? If 53.4 cm is after the 6th bounce then
 $53.4(0.75) = 40.05$
 \nwarrow one more bounce so the 7th bounce

p. 40 cont.

10. jeans fade 5% each wash

a) 95% of the colour remains after each wash

$$b) \begin{matrix} t_1 & t_2 & t_3 & t_4 \\ 100, & 95, & 90.25, & 85.74 \end{matrix}$$
c) $r = 0.95$ d) after 10 washings you will have the 11th term

$$\begin{matrix} 100 & 95 & 90.25 & 85.75 & \dots \\ t_1 & t_2 & t_3 & t_4 & \dots \end{matrix}$$

(1st wash)
(2nd wash)
(3rd wash)

$$\text{so } t_{11} = 100(0.95)^{11-1}$$

$$t_{11} = 100(0.598737)$$

$$t_{11} = 59.87$$

59.87% of the colour left

e) 59.87, 56.88, 54.04,

guess and check \rightarrow 27th washing