

3.5 Solutions to 3.4 Exercise

A-Level Pure Mathematics, Year 2 Geometric Progressions

Answer 1

8

Answer 2

$$-\frac{2}{3}$$

Answer 3

$$r = -\frac{1}{2} \quad a = 12$$

[2, 3, 4 marks]

Answer 4

$$(a) \quad \frac{ar^5}{ar^2} = \frac{96}{324}$$

$$r^3 = \frac{8}{27}$$

$$r = \frac{2}{3}$$

(b) 729

(c) 2182

(d) 2187

[2, 2, 3, 2 marks]

Answer 5

(a) See Lesson 2 notes & video

(b) 204 600

(c) $\frac{5}{4}$

(d) $-1 < r < 1$

[4, 3, 3, 1 marks]

Answer 6

$$(i) \quad \frac{k}{k+4} = \frac{2k-15}{k}$$

$$k^2 = (2k-15)(k+4)$$

$$k^2 = 2k^2 + 8k - 15k - 60$$

$$k^2 - 7k - 60 = 0 \quad \square$$

$$(ii) \quad (k-12)(k+5) = 0$$

$\therefore k = 12 \quad \square \quad$ Reject $k = -5$ as told k is a positive constant

(iii) 0.75

(iv) 64

[4, 2, 1, 2 marks]

Answer 7

(a) 0.9

(b) 8

(c) 79.582

(d) 0.412

[2, 2, 2, 2 marks]

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Teachers may obtain detailed worked solutions to the exercises by email from MHHShrewsbury@Gmail.com