

8.2 Brief Solutions

A-Level Pure Mathematics : Year 1
GCSE (Grades 8 and 9)
Algebra of Surds and Indices I

Answer 1

(a) m^7 (b) c^8 (c) a^{15} (d) $10x + 22$

[1, 1, 1, 2 marks]

Answer 2

(a) 63 (b) $11 - 6\sqrt{5}$

[1, 3 marks]

Answer 3

(a) $6\sqrt{3}$ (b) $7 - 4\sqrt{3}$

[1, 3 marks]

Answer 4

(i) $15\sqrt{105}$ (ii) $60\sqrt{7}$

[2, 2 marks]

Answer 5

(a) 2 (b) $0.25x^{-2}$

[1, 3 marks]

Answer 6

Answer 7

(i) $726 = 2 \cdot 3 \cdot 11^2$

(i) $1350 = 2 \cdot 3^3 \cdot 5^2$

(ii) $11\sqrt{6}$ i.e. $v = 11$

(ii) $15\sqrt{6}$ i.e. $w = 15$

[2, 2 marks]

Answer 8

$26\sqrt{6}$

[1 mark]

Answer 9

(a) 13 (b) $8 - 2\sqrt{3}$

[2, 2 marks]

Answer 10

$-5 + 36\sqrt{2}$ Unedited question wanted $-5 + 12\sqrt{18}$ which is silly !

[3 marks]

Answer 11

$5 + 3\sqrt{3}$

[4 marks]

Answer 12

$\frac{11}{2}$

[3 marks]

Answer 13

$120\sqrt{10}$

[3 marks]

Answer 14

(a) $7\sqrt{2}$ (b) $3\sqrt{2} - 2$

[2, 4 marks]

Answer 15

$$\frac{6m^3}{5k^2}$$

[2 marks]

Answer 16

$$\frac{2e^2}{f^4}$$

[2 marks]

Answer 17

$$3.2 \times 10^{10k+1}$$

[3 marks]