

1.2 Answers (Revision of GCSE Algebra)

Additional Mathematics
A-Level Pure Mathematics : Year 1
Topics in Algebra

Answer 1

(a) $7(p - 3)$

(b) $- 2$

[1, 2 marks]

Answer 2

$$\begin{aligned} \text{LHS} &= \frac{5}{6} - \frac{3}{4} & \text{lcm}\{6, 4\} &= 12 \\ &= \frac{2}{2} \times \frac{5}{6} - \frac{3}{4} \times \frac{3}{3} \\ &= \frac{10}{12} - \frac{9}{12} \\ &= \frac{1}{12} \\ &= \text{RHS} \end{aligned} \quad \square$$

[2 marks]

Answer 3

(a) (i) p^6
(ii) q^2

[1, 1 marks]

(b) $4x + 9$

[2 marks]

(c) $y^2 + 8y + 15$

[2 marks]

Answer 4

(a) 2^9

(b) 3^5

(c) $n = 13$

[1, 1, 2 marks]

Answer 5

(a) $3b(3a - 4b)$

(b) $8a^3b^6$

[2, 2 marks]

Answer 6

(a) $81 a^8 b^4$

(b) $3 c^4$

[2, 2 marks]**Answer 7**

(a) $(x - 2)(x - 6)$

(b) $(x + 9)(x - 9)$

[2, 1 marks]**Answer 8**

$$\frac{x + 11}{x + 6}$$

[2 marks]**Answer 9**

$$\frac{x}{x - 5}$$

[3 marks]**Answer 10**

(i) $\frac{112x + 67}{15}$

(ii) $\frac{13x + 50}{12}$

[3, 3 marks]**Answer 11**

$$\frac{12x + 41}{(x + 4)(x + 3)}$$

[3 marks]**Answer 12**

$$\begin{aligned}
 \text{LHS} &= \frac{3}{(x + 6)} + \frac{5}{(x - 10)} \\
 &= \frac{(x - 10)}{(x - 10)} \times \frac{3}{(x + 6)} + \frac{5}{(x - 10)} \times \frac{(x + 6)}{(x + 6)} \\
 &= \frac{3x - 30 + 5x + 30}{(x + 6)(x - 10)} \\
 &= \frac{8x}{(x + 6)(x - 10)} \\
 &= \text{RHS} \qquad \qquad \qquad \square
 \end{aligned}$$

[3 marks]

Answer 13

(a) $\frac{x}{x-5}$

(b) $\frac{8x+36}{(2x+3)(2x-9)}$

[2, 4 marks]

Answer 14

$x = 11$

[4 marks]

Answer 15

$x = -\frac{8}{3} \quad (-2.67)$

[3 marks]

Answer 16

$x = -2, 15$

[4 marks]