Fully-Worked Solutions

PRACTICE 3

Section A

1 $p = (3 \times x) + (7 \times y)$
$p = 3x + 7y$
Answer: **C**

2 $T = m + (m - 5)$
$= 2m - 5$
Answer: **A**

3 A = Base × Height
$= x \times y$
$= xy$
Answer: **B**

4 $A = \frac{1}{2} \times (x + y - 2 + 3x - 2y + 7) \times 16$
$= 8(4x - y + 5)$
Answer: **D**

5 $x + 2y + 10° + 65° = 180°$
$x = 180° - 75° - 2y$
$x = 105° - 2y$
Answer: **B**

6 $p^2 = m^2 + (2n)^2$
$\sqrt{p^2} = \sqrt{m^2 + 4n^2}$
$p = \sqrt{m^2 + 4n^2}$
Answer: **C**

7 $L = \frac{1}{2} \times 2x \times (p + q)$
$= x(p + q)$
Answer: **A**

8 $a = \frac{2b}{2b + 3c}$
$a(2b + 3c) = 2b$
$2ab + 3ac = 2b$
$3ac = 2b - 2ab$
$3ac = 2b(1 - a)$
$b = \frac{3ac}{2(1 - a)}$
Answer: **D**

9 $3k + \frac{2m}{3n} = 2m$
$(\times 3n)\quad 9kn + 2m = 6mn$
$9kn = 6mn - 2m$
$9kn = 2m(3n - 1)$
$m = \frac{9kn}{2(3n - 1)}$
Answer: **C**

10 $(\sqrt{8 + k})^2 = (3p)^2$
$8 + k = 9p^2$
$k = 9p^2 - 8$
Answer: **B**

11 $3p - \frac{2}{q} = \frac{m}{q} - 5$
$(\times q)\quad 3pq - 2 = m - 5q$
$3pq + 5q = m + 2$
$q(3p + 5) = m + 2$
$q = \frac{m + 2}{3p + 5}$
Answer: **A**

12 $p = 5q - 4r$
$= 5(6) - 4(-2)$
$= 30 + 8$
$= 38$
Answer: **C**

13 $P = 2(x + y + 2)$
$42 = 2(7 + y + 2)$
$y + 9 = 21$
$y = 12$
Answer: **B**

14 Area of remaining part
$= (7p \times 4q) - (3p \times q)$
$= 25pq$
$= 25(3)(4)$
$= 300$
Answer: **D**

Section B

1 (a) ✓ (b) ✗ (c) ✗ (d) ✓

2 (a) F (b) a (c) V (d) E

3 $A = 45$
$\frac{1}{2} \times (x + 2y + 1) \times 6 = 45$
$3(x + 2y + 1) = 45$
$x + 2y + 1 = 15$
$x + 2y = 14$

Section C

1 (a) (i) $h = \frac{3}{4}g^2 - f$
$f = \frac{3}{4}g^2 - h$
(ii) $f = \frac{3}{4}(-8)^2 - 5$
$= \frac{3}{4}(64) - 5$

$= 48 - 5$

$= 43$

(b) Total area $= 2L$

$$2x(y + 5) + \frac{1}{2}(6x)(y + 4) = 2L$$

$$2xy + 10x + 3x(y + 4) = 2L$$

$$2xy + 10x + 3xy + 12x = 2L$$

$$5xy + 22x = 2L$$

$$x(5y + 22) = 2L$$

$$x = \frac{2L}{5y + 22}$$

(c) (i) $L = (2g \times g) + \left(\frac{1}{2} \times g \times h\right)$

$= 2g^2 + \frac{1}{2}gh$

(ii) $L = 2(4)^2 + \frac{1}{2}(4)(7)$

$= 2(16) + 14$

$= 32 + 14$

$= 46$

2 (a) (i) $P = a + a + a$

$= 3a$

(ii) $15 = 3a$

$a = 5$

(b) (i) $A = a \times b$

$= ab$

(ii) $a + b = 14$

$a = 5,\ 5 + b = 14$

$b = 14 - 5$

$= 9$

(iii) $A = ab$

$= 5 \times 9$

$= 45$

(c) (i) Total area $= 55.83$

$45 + T = 55.83$

$T = 55.83 - 45$

$= 10.83$

(ii) Area of triangle $KLM = 10.83$

$$\frac{1}{2} \times 5 \times t = 10.83$$

$$t = 10.83 \times \frac{2}{5}$$

$= 4.33$