

# Fully-worked Solutions

## Practice 5

### Formative Practice

- 1 A: X is not a variable.  
 B: X is not a variable.  
 C: X is not a variable.  
 D: X is a variable.

Answer: D

- 2 P is a variable.

Answer: B

- 3 (a)  $8 - x$   
 (b)  $5t + 10$   
 (c)  $2(h + k)$   
 (d)  $\frac{1}{2}p - 4q$

- 4 RM( $mx + ny$ )

- 5 (a)  $T : H = a : b$   
 $T : T - H = a : a - b$

$$\frac{T}{k} = \frac{a}{a - b}$$

$$T = \frac{ak}{a - b}$$

- (b)  $H : T - H = b : a - b$

$$\frac{H}{k} = \frac{b}{a - b}$$

$$H = \frac{bk}{a - b}$$

- 6 When  $x = 49$  and  $y = 18$ ,

$$\begin{aligned} \left(3\sqrt{x} - \frac{2}{3}y\right)^2 &= \left(3\sqrt{49} - \frac{2}{3} \times 18\right)^2 \\ &= (3 \times 7 - 12)^2 \\ &= (21 - 12)^2 \\ &= 9^2 \\ &= 81 \end{aligned}$$

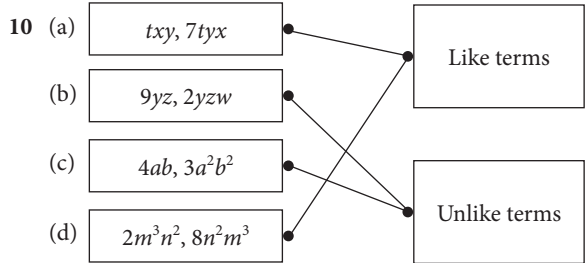
- 7 (a)  $15pq + 4 = 15(2)(3) + 4$   
 $= 90 + 4$   
 $= 94$

(b)  $13 - 5pq^2 = 13 - 5(-6)(-1)^2$   
 $= 13 + 30$   
 $= 43$

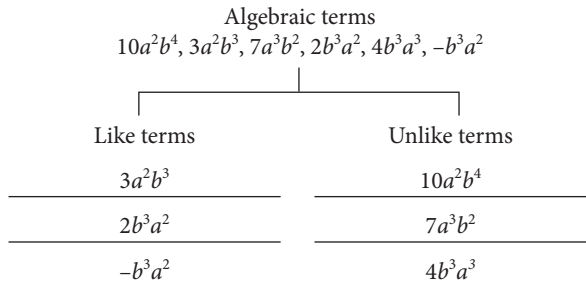
8

	Coefficient	Variable	Algebraic term
(a)	4	$x$	$4x$
(b)	-7	$p$	$-7p$
(c)	$\frac{3}{5}$	$y$	$\frac{3}{5}y$
(d)	$-\frac{9}{11}$	$k$	$-\frac{9}{11}k$

- 9 (a)  $4k$  (b)  $-2$   
 (c)  $\frac{5}{6}p$  (d)  $-\frac{3}{8}w$



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12  $-5(3 + w) + 8w - 2$   
 $= -15 - 5w + 8w - 2$   
 $= -17 + 3w$   
 $= 3w - 17$

Answer: C

13  $(3k + 8m) - (7k - 2m)$   
 $= 3k + 8m - 7k + 2m$   
 $= -4k + 10m$

Answer: D

14 (a)  $2a - 8 + 3a = 5a - 8$

(b)  $4h + p - 5h - 11p$   
 $= -h - 10p$

(c)  $5 - 3mn - 9mn + 15mn$   
 $= 5 + 3mn$

(d)  $7n^2 - 6m^2n + 15n^2 - 6m^2n$   
 $= 22n^2 - 12m^2n$

15 (a)  $(7 + 6h) + (2k - h - 3)$   
 $= 7 + 6h + 2k - h - 3$   
 $= 2k + 5h + 4$

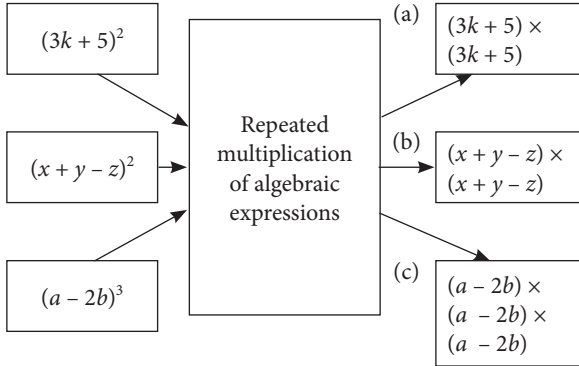
(b)  $(3m + n - 1) - (4m - 8n + 5)$   
 $= 3m + n - 1 - 4m + 8n - 5$   
 $= -m + 9n - 6$

(c)  $(11p^2 - 2rs) + (p^2 - 4) - (2 - 9rs)$   
 $= 11p^2 - 2rs + p^2 - 4 - 2 + 9rs$   
 $= 12p^2 + 7rs - 6$

$$\begin{aligned} \text{(d)} \quad & (2uv + 13w) - (7w + 3) - (8 - 3w - 2uv) \\ &= 2uv + 13w - 7w - 3 - 8 + 3w + 2uv \\ &= 4uv + 9w - 11 \end{aligned}$$

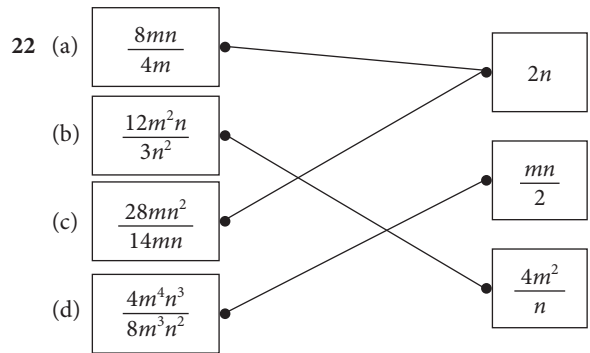
- 16 (a)  $a^2$   $\bullet$   $a \times a \times a$   
 (b)  $a^3$   $\bullet$   $a \times a \times a \times a \times a$   
 (c)  $a^4$   $\bullet$   $a \times a$   
 (d)  $a^5$   $\bullet$   $a \times a \times a \times a$

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- 18 (a)  $(uv^2w)^3$   
 (b)  $(uv^2w)^4$
- 19 (a)  $5cy \times 2c^2y = 5 \times c \times y \times 2 \times c \times c \times y$   
 $= 5 \times 2 \times c \times c \times c \times y \times y$   
 $= 10c^3y^2$   
 (b)  $\frac{12a^2b^4}{4ab^2} = \frac{12 \times a \times a \times b \times b \times b \times b}{4 \times a \times b \times b}$   
 $= 3ab^2$
- 20 (a)  $3 \times r \times s \times t \times 4 \times t \times r = 12r^2st^2$   
 (b)  $6 \times m \times m \times n \times 3 \times y \times m = 18m^3ny$   
 (c)  $-5 \times a \times c \times c \times c \times b \times 2 \times b \times a \times a \times c = -10a^3b^2c^4$   
 (d)  $\frac{1}{2} \times p \times x \times y \times 8 \times p \times p \times x \times y \times y \times y = 4p^3x^2y^4$

- 21 (a)  $15pqr^2 \div 5pr = \frac{15pqr^2}{5pr}$    
 $= 3qr$
- (b)  $-18h^3k + 20hk^2 = \frac{-18h^3k}{20hk^2}$    
 $= -\frac{9h^2}{10k}$
- (c)  $30abc \div (-6ac^4) = \frac{30abc}{-6ac^4}$    
 $= -\frac{5b}{c^3}$
- (d)  $(-21x^2y^5) \div (-24x^5y^2) = \frac{-21x^2y^5}{-24x^5y^2}$    
 $= \frac{7y^3}{8x^3}$



### Summative Practice

- 1 Variables:  $x, Q$   
 Answer: **B**
- 2 The coefficient of  $t$  in the term  $-5t$  is  $-5$ .  
 Answer: **C**
- 3 A: Wrong  
 B: Correct  
 C: Wrong  
 D: Wrong  
 Answer: **B**
- 4 A:  $m + 2n + 2m - 7n = 3m - 5n$   
 B:  $8m + 12n - 5m - 17n = 3m - 5n$   
 C:  $4m - n + m + 4n = 5m + 3n$   
 D:  $10m - 4n - 7m - n = 3m - 5n$   
 Answer: **C**
- 5  $4pr + 13t^2 = 4(6)(-9) + 13(-5)^2$   
 $= -216 + 13 \times 25$   
 $= -216 + 325$   
 $= 109$   
 Answer: **D**
- 6 (a) The coefficient of  $r$  is  $\frac{9w}{2}$ .  
 (b)  $\frac{9rw}{2} = \frac{9(-15)(8)}{2}$   
 $= -540$   
 (c) Like terms:  $-5wr, \frac{8}{13}rw$
- 7 (a)  $3(mv + 3n) + 2(8mv - 5n)$   
 $= 3mv + 9n + 16mv - 10n$   
 $= 19mv - n$   
 (b)  $(7xy - 9p^2) - (5xy - 4p^2)$   
 $= 7xy - 9p^2 - 5xy + 4p^2$   
 $= 2xy - 5p^2$
- 8 (a)  $(7mn)^2 = 49m^2n^2$   
 (b)  $\frac{4}{9}hrw \times \frac{3}{2hw} = \frac{2}{3}r$   
 (c)  $\frac{20x^2y^3z^4}{-5xyz^3} = -4xy^2z$
- 9 (a) Sum of money deposited  
 $= \text{RM}(20x + 50y)$   
 (b) Sum of money deposited  
 $= \text{RM}(20 \times 55 + 50 \times 42)$   
 $= \text{RM}3\,200$

10 (a)  $(5ac + 2b) - (ac + 3b)$   
 $= 5ac + 2b - ac - 3b$   
 $= (4ac - b) \text{ cm}$

(b)  $4ac - b = 4(3)(2) - 7$   
 $= 24 - 7$   
 $= 17 \text{ cm}$