

## FORM 2 CHAPTER 3

### Summative Practice

#### Section A

1 Answer: **B**

2 Answer: **D**

3  $3a + 6b = 180^\circ$   
 $a + 2b = 60^\circ$   
Answer: **C**

4 6 months  $\rightarrow$  increase RM60  
1 year  $\rightarrow$  increase RM120  
 $T$  years  $\rightarrow$  increase RM120T  
 $\therefore P = K + 120T$   
Answer: **B**

5 Answer: **A**

6  $a = \frac{1}{3}b + 5$   
 $\frac{1}{3}b = a - 5$   
 $b = 3a - 15$   
Answer: **C**

7  $k = \frac{m^2 - 9}{4}$   
 $m^2 - 9 = 4k$   
 $m^2 = 4k + 9$   
 $m = \sqrt{4k + 9}$   
Answer: **A**

8  $h = 4\sqrt{\frac{2x}{3}}$   
 $\frac{2x}{3} = \left(\frac{h}{4}\right)^2$   
 $2x = \frac{3h^2}{16}$   
 $x = \frac{3h^2}{32}$

Answer: **B**

9  $d = \frac{4e^2}{3f}$   
Substitute  $e = -2$  and  $f = 8$ .  
 $d = \frac{4(-2)^2}{3(8)}$   
 $= \frac{16}{24}$   
 $= \frac{2}{3}$

Answer: **C**

10  $y = \frac{hk^2 - 2}{3h + 2}$   
Substitute  $y = 2$  and  $k = 3$ .  
 $2 = \frac{h(3)^2 - 2}{3h + 2}$   
 $6h + 4 = 9h - 2$   
 $4 + 2 = 9h - 6h$   
 $3h = 6$   
 $h = \frac{6}{3}$   
 $= 2$   
Answer: **A**

#### Section B

1 (a)  $p + 2q - 2r + \frac{s}{2} = 0$   
 $p = -2q + 2r - \frac{s}{2}$

True

(b)  $p + 2q - 2r + \frac{s}{2} = 0$   
 $q = \frac{-2p + 4r - s}{4}$

False

(c)  $p + 2q - 2r + \frac{s}{2} = 0$   
 $r = \frac{2p + 4q + s}{4}$

False

(d)  $p + 2q - 2r + \frac{s}{2} = 0$   
 $s = -2p - 4q + 4r$

True

2  $k = \sqrt{\frac{p-q}{5}}$   
 $k^2 = \frac{p-q}{5}$

$5k^2 = p - q$

(a)  $p = 5k^2 + q$

(c)  $q = p - 5k^2$

Substitute  $p = 18$  and  $k = 2$

$q = 18 - 5(2)^2$   
 $= 18 - 20$   
 $= -2$

(b)  $q = p - 5k^2$

(d)  $p = 5k^2 + q$

Substitute  $k = -3$  and  $q = -8$

$p = 5(-3)^2 + (-8)$   
 $p = 37$

#### Section C

1 (a) (i)  $x = \frac{8k}{h+k}$   
 $x(h+k) = 8k$   
 $hx + kx = 8k$   
 $hx = 8k - kx$   
 $h = \frac{8k - kx}{x}$

(ii)  $x = \frac{8k}{h+x}$   
 $x(h+x) = 8k$   
 $hx + kx = 8k$   
 $hx = 8k - kx$   
 $hx = k(8-x)$   
 $k = \frac{hx}{8-x}$

(b) (i) Area of rectangle  $ABDE = 9 \times 16 = 144 \text{ cm}^2$

Area of triangle  $ABC = \frac{1}{2} \times x \times 9$   
 $= \frac{9x}{2} \text{ cm}^2$

Area of trapezium  $DEFG$

$= \frac{1}{2} \times 4 \times (x+9)$   
 $= 2x + 18 \text{ cm}^2$

Area of shaded region,

$A = 144 - \frac{9x}{2} - 2x - 18$

$A = 126 - \frac{13x}{2} \text{ cm}^2$

(ii)  $A = 126 - \frac{13(5)}{2}$   
 $= 126 - \frac{65}{2}$   
 $= 126 - 32\frac{1}{2}$   
 $= 93\frac{1}{2} \text{ cm}^2$

(iii)  $87 = 126 - \frac{13x}{2}$   
 $\frac{13x}{2} = 126 - 87$   
 $13x = 39 \times 2$   
 $x = 6 \text{ cm}$