

Exercise 2H

1 a $x^2 + 2x - 3$

b $x^2 - 64$

c $x^2 + 10x + 25$

d $5x + 22$

2 $n^2 + 9n + 14$

3 $2w^2 + 7w$

4 $3 \times 13 = 39$ and $2 \times 9 + 7 \times 3 = 39$

5 $11 \times 11 = 121$ and $5^2 + 36 = 61$

6 $2n^2 + 12n + 18$

7 Both are equal to $2ab + xy - by$. He has found the correct area.

8 As n is even, then $n + 1$ will be odd, and so will $n + 3$.

Their product is: $(n + 1)(n + 3) = n^2 + 4n + 3$

As n is even, n^2 and $4n$ will also be even. Adding an odd number (here, 3) to an even number always results in an odd number.

9 $\sqrt{x^2 + x^2} = \sqrt{2x^2}$ or $\sqrt{2}x$

10 length is $x + 8$, $n = 5$

Exercise 2J

1 a $m = \frac{Pt}{(v-u)}$

b $r = \sqrt{\frac{V}{\pi h}}$

c $u = \sqrt{v^2 - 2as}$

d $x = a + \sqrt{r^2 - y^2}$

e $g = \frac{4\pi^2 l}{T^2}$

2 a $\alpha = \frac{P-P_0}{P_0 t}$

b $t = \frac{P-P_0}{P_0 \alpha}$

3 a $r = \sqrt{\frac{S}{4\pi}}$

b $r = \frac{V}{3\pi h}$

c $r = \frac{2A}{h} - R$

d $r = \sqrt{\left(R^2 - \frac{V}{\pi h}\right)}$

4 Both are correct. $\frac{P-2w}{2} = l$ is the same as $\frac{P}{2} - \frac{2w}{2} = l$ which is $\frac{P}{2} - w = l$

5 a $t = \frac{2s}{(u+v)}$

b $t = \frac{(v-u)}{f}$

c $t = \frac{PV}{Rm}$

d $t = \frac{(T-k\beta)}{k\alpha}$

6 a $k = d(P - mv)$

b $m = \frac{(Pd - k)}{dv}$

c $v = \frac{(Pd - k)}{dm}$

d $d = \frac{k}{P - mV}$

7 a $m = -2, c = 9$

b $m = \frac{1}{5}, c = -2$

c $m = \frac{2}{5}, c = 3$

d $m = 2, c = 0$

e $m = -2, c = 2$

Consolidation

Exercise 2

1 a x^5

b y^8

c $2x^7$

d $3x^9$

e x^9

f y^{11}

2 a x

b 1

c x^4

d y^5

e x^5

f y^2

3 a 1

b 5

c $4m^6$

d $16x^2y^6$

e $\frac{x}{2v^2}$

f $\frac{y^3z^2}{x}$

4 a y^{10}

b a^4

c x^{-2}

d m^8

e p^{-3}

f $21x^9$

g $4m^{-2}$

h q^{-8}

i p^2

j R^{10}

5 a $x^2 + 8x + 12$

b $x^2 - 25$

c $x^2 - 3x - 38$

d $x^2 + 6x - 16$

e $x^2 - 7x + 12$

f $x^2 - 11x + 10$

g $x^2 + 10x + 25$

h $x^2 - 18x + 81$

6 a i $A = x^2 - 2x - 15$

ii $A = x^2 - 8x + 12$

b i $P = 4x - 4$

ii $P = 4x - 16$

c i $A = 65; P = 36$

ii $A = 32; P = 24$

7 a $\frac{d}{4} + \frac{d}{6} = \frac{3d+2d}{12} = \frac{5d}{12}$ b $\frac{3x}{5} + \frac{x}{4} = \frac{12x+5x}{20} = \frac{17x}{20}$

c $\frac{2m}{3} - \frac{m}{10} = \frac{20m-3m}{30} = \frac{17m}{30}$

d $\frac{y}{3} + \frac{2y}{5} + \frac{y}{4} = \frac{20y+24y+15y}{60} = \frac{59y}{60}$

e $\frac{3}{m} + \frac{1}{2m} = \frac{6+1}{2m} = \frac{7}{2m}$

f $1 - \frac{1}{x} = \frac{x-1}{x}$

g $\frac{3}{4b} + \frac{2}{3c} = \frac{9c+8b}{12bc}$

h $\frac{2}{x+1} + \frac{1}{x+3} = \frac{2(x+3)+(x+1)}{(x+1)(x+3)} = \frac{2x+6+x+1}{(x+1)(x+3)} = \frac{3x+7}{(x+1)(x+3)}$

8 a $v = \frac{3b-p}{2}$ b $h = y - 4T$ c $m = \frac{3(x-y)}{2}$

d $r = \frac{Y+t}{2} - P$ e $n = \frac{ab}{3(j+y)}$ f $s = \frac{hy-d}{2}$

9 a $h = 20\left(F - \frac{R}{2}\right)$

b $h = 3\left(y^2 - \frac{x}{2}\right)$

c $h = \frac{A}{2\pi r^2}$

d $h = \frac{xy}{(x+y)}$

10 a $r = \sqrt[3]{\frac{3V}{4\pi}}$

b 3.63 cm

11 a 48

b 20.1

c -4

d 9

e -4.38

f -12.8

Summary

Check out

1 a b^8

b $3c^2$

c $\frac{3a}{2}$

d $\frac{5a^3b^2}{c^3}$

e $9x^6$

2 a $x = \frac{(y-c)}{m}$

b $x = \sqrt{y^2 - c^2}$

c $x = y(p-c) - c$

3 a $x^2 + 6x + 5$

b $x^2 + x - 12$

c $x^2 - 4x - 12$

d $x^2 - 11x + 24$

e $x^2 + 10x + 25$

4 a $\frac{11e}{15}$

b $\frac{5y}{12}$

c $\frac{11}{2x}$

d $\frac{(2p+d)}{8p}$

5 581.25