

IGCSE higher Week 2 answers

1, a) $8xy - 4y$ b) $7m^2 - 16m + 11m$ c) -3

2, a) $8 + 12x$ b) $-5x + 40$ c) $9a + 12a^2$ d) $18x + 42 - 10x + 8 = \underline{8x + 50}$

e) $a^2 + 3a - 10$ f) $3a^2 - 6a - 24$ g) $8c^2 - 42c + 40$

h) $x^2 + 14x + 49$ i) $5x^2 + 5x - 210$ j) $\frac{(x+1)(x+2)}{(x^2+3x+2)(x+3)}$

k) $(2a+3)(a-5)$
 $(2a^2 - 7a - 15)(a+8)$
 $\underline{2a^3 + 16a^2 - 7a^2 - 56a + 15a - 120}$
 $= \underline{2a^3 + 9a^2 - 41a - 120}$

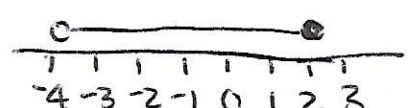
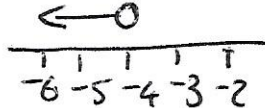
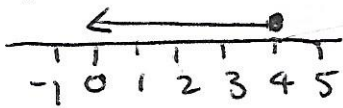
l) $4x + 22$

3, a) $x = 4$ b) $x = 5$ c) $x = -2$ d) $x = 5$ e) $x = -6$

f) $x = 20$ g) $x = 10$ h) $x = 14$ i) $x = 7$ j) $x = 3$

k) $x = -1$ l) $x = 4$


4, a) $a \leq 4$ b) $x < -4$ c) $-4 < x \leq 2$



5, Isosceles triangle $\therefore 3x - 5 = 19 - x$ side lengths are 13, 13 & 12
 $4x = 24$
 $x = 6$

\therefore Perimeter = 38cm

6, a) -8 b) 8 c) 9 d) 71 e) $4x(-3)^2 = 36$ f) $\frac{5x-3^3}{5x-27} = -135$

7,  $4x + 30 = 150$
 $4x = 120$
 $x = 30m$

Area = $30 \times 45 = 1350m^2$

8, a) $35w^{20}$ b) $5a^3$ c) $3r^{-1}$ d) $12a^3b^5$ e) $a^{21} \div a^3 = a^{18}$

f) $8a^2$ g) 9^{-24} h) $8b^{21}$

9, a) $\frac{1}{9^{16}}$ b) $\frac{1}{49}$ c) $\frac{1}{9}$ d) $\frac{1}{121}$ e) $\frac{1}{125}$ f) $\frac{1}{32}$

$$9, g^3 \quad h, 6 \quad i, 9 \quad j, 3 \quad k, 4 \quad l, 2$$

$$10, a, \frac{1}{4} \quad b, \frac{1}{64} \quad c, 10 \quad d, \frac{1}{16} \quad e, 2 \quad f, 5 \quad g, 13$$

$$h, \frac{1}{225} \quad i, \frac{1}{5} \quad j, \frac{1}{3} \quad k, \frac{1}{7} \quad l, 5^{-3} = \frac{1}{125} \quad m, \frac{9}{16}$$

$$n, \frac{8}{125} \quad o, \frac{5}{8} \quad p, \left(\frac{9}{4}\right)^{\frac{1}{2}} = \frac{3}{2} \quad q, \left(\frac{27}{125}\right)^{\frac{1}{3}} = \frac{3}{5}$$

$$11, a, 4^2 = 16$$

$$\therefore n = 2$$

$$b, n = -2$$

$$c, n = -3$$

$$d, n = -5$$

$$e, n = -2$$

$$f, 3^2 = 3^5 = 3^{-3}$$

$$n = -3$$

$$g, 2^{18} = (2^3)^2$$

$$2^{11} = 2^6 = 2^5$$

$$n = 5$$

$$h, (5^2)^2 \times 5^2$$

$$5^4 \times 5^2 = 5^{11}$$

$$n = 11$$

$$12, a, (8^{\frac{1}{3}})^2 = 2^2 = \underline{4}$$

$$b, 64$$

$$c, \frac{1}{8}$$

$$d, \frac{1}{16}$$

$$e, 100 \quad f, \frac{1}{8}$$

$$13, (8)^{\frac{1}{3}} \times (10^{27})^3 \Rightarrow 2 \times 10^9$$

$$14, \left(\frac{16}{9}\right)^{\frac{3}{2}} = \left(\frac{4}{3}\right)^3 = \frac{64}{27}$$

$$15, 3^{-2} \times 9^1 \times 27$$

$$3^{-2} \times 3^2 \times 3^3 = 3^3$$

$$3^3$$

$$16, 16 \Rightarrow 2^4 \quad \text{So } 16^{\frac{1}{5}} = 2^{\frac{4}{5}}$$

$$8 \Rightarrow 2^3 \quad \text{So } 8^{\frac{2}{5}} = (2^3)^{\frac{2}{5}} = 2^{\frac{6}{5}}$$

$$2^{\frac{4}{5}} \times 2^x = 2^{\frac{6}{5}}$$

$$\therefore 2^{\frac{6}{5}} \div 2^{\frac{4}{5}} = 2^x$$

$$x = \frac{6}{5} - \frac{4}{5} = \boxed{\frac{2}{5}}$$

$$17, a, 5x - 8 = 12x + 6$$

$$-14 = 7x$$

$$x = -2$$

$$b, 32x - 8 = 30x$$

$$2x = 8$$

$$x = 4$$

$$c, 7 - 3y = 8$$

$$-1 = 3y$$

$$y = -\frac{1}{3}$$