

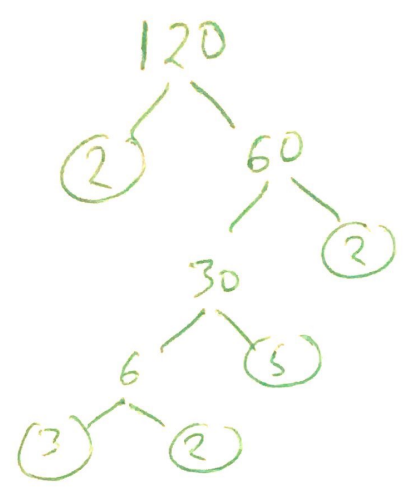
Y8 DECEMBER

ASSESSMENT

SOLUTIONS

Use index notation to write each of the following as the product of its prime factors.

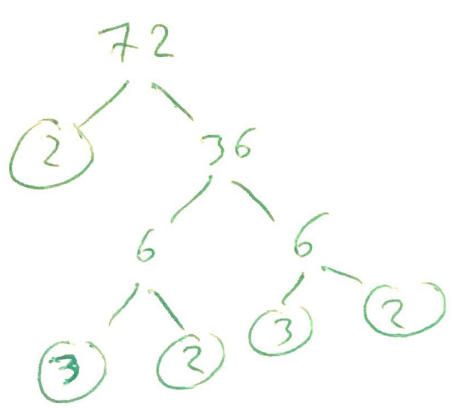
a 120



$$= 2 \times 2 \times 2 \times 3 \times 5$$

$$= \underline{2^3 \times 3 \times 5}$$

b 72



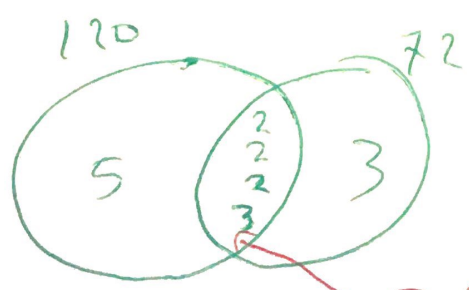
$$= 2 \times 2 \times 2 \times 3 \times 3$$

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

(4 marks)

2 Use your results from Question 1 to find

a the highest common factor of 120 and 72



$$= 2 \times 2 \times 2 \times 3$$

$$= 24$$

$$\underline{24}$$

b the lowest common multiple of 120 and 72

$$= 5 \times 2 \times 2 \times 2 \times 3 \times 3$$

$$\underline{360}$$

(4 marks)

3 Write each of these as a single power.

a $7^3 \times 7^7$

7^{10}

b $18^{15} \div 18^3$

18^{12}

(2 marks)

4 Round each number to the given number of significant figures.

a 60 799 (2 s.f.)

61,000

b 0.006 058 7 (3 s.f.)

0.00606

(2 marks)

5 Estimate 30.9^2

$\approx 30 \times 30$

900

(2 marks)

6 Fill in each empty box to make the statement true.

a $10 + 5(x + 3) \equiv 5(x + \boxed{5})$

$$\begin{aligned} 10 + 5(x + 3) &= 10 + 5x + 15 \\ &= 5x + 25 \\ &= 5(x + 5) \end{aligned}$$

b $10 - 3x + 4 \equiv \boxed{2} + 3(4 - x)$

$$3(4 - x) = 12 - 3x \quad \downarrow +2$$

$$10 - 3x + 4 = 14 - 3x$$

(2 marks)

7 Expand and simplify $6x(2x - 4) - 5(2 + x)$

$$= 12x^2 - 24x - 10 - 5x$$

$$= 12x^2 - 29x - 10$$

$$\underline{12x^2 - 29x - 10}$$

(3 marks)

8 Find the value of each expression when $a = 4$ and $b = -5$

a $2 + 3a^2$

$$= 2 + 3 \times 4^2$$

$$= 2 + 48$$

$$\underline{50}$$

b $5 + (15 - 3b)^2$

$$= 5 + (15 - 3 \times -5)^2$$

$$= 5 + (15 - (-15))^2$$

$$= 5 + 30^2$$

$$= 5 + 900$$

$$\underline{905}$$

(3 marks)

9 Solve the equation $20 - 3(2x - 7) = 5(x + 5) - 6$

$$20 - 6x + 21 = 5x + 25 - 6$$

$$41 - 6x = 5x + 19$$

$$+6x \qquad +6x$$

$$41 = 11x + 19$$

$$11x = 22$$

$$\underline{\underline{x = 2}}$$

(4 marks)