



Rosary School \ Marj El Hamam

Name: Answer Key

Date: / 9 / 2025

Subject: Worksheet (1) / Unit (1)

Number

Grade: 7 (A, B, C, D, E)

1.1 Calculating with negative numbers

Q1: Work out.

a) $5 - (-3) = 5 - 3 = 2$

b) $-8 + 12 = 4$

c) $-15 + (-7) =$

$-15 + 7 = -8$

d) $-35 + (-30) = -65$

e) $16 \times (-9) = -144$

f) $-27 \times 4 = -108$

g) $-12 \times (-5) = 60$

h) $15 \times (-8) = -120$

i) $342 \div (-3) = -114$

j) $-154 \div 7 = -22$

k) $-45.18 \div (-9) = 5.02$

l) $72 \div (-12) = -6$

Q2: Substitute the values into each expression and work out its value.

a) $3x - 4$ when $x = -6$

$$= 3 \times -6 - 4$$

$$= -18 - 4 = -22$$

b) $u + at$ when $u = 3, a = -9$ and $t = 6$

$$= 3 + -9 \times 6$$

$$= 3 + (-54)$$

$$= 3 - 54 = -51$$

c) $m(p - t)$ when $m = -3, p = 5$ and $t = -7$

$$= -3 (5 - (-7))$$

$$= -3 (12)$$

$$= -36$$

d) $a - (2ab + c)$ when $a = 8, b = -4$ and $c = 2$

$$= 8 - (2 \times 8 \times -4 + 2)$$

$$= 8 - (-64 + 2)$$

$$= 8 - (-62) = 70$$

Q3: Expand the brackets to work these out.

Check your answers using the order of operations.

a. $7 \times (-6 - 3)$ $= 7 \times -6 - 7 \times 3$ $= -42 - 21$ $= -63$ check $\left\{ \begin{array}{l} 7 \times (-6 - 3) \\ = 7 \times -9 \\ = -63 \end{array} \right.$	b. $-2(-5 + 8)$ $= -2 \times -5 + -2 \times 8$ $= 10 + (-16)$ $= 10 - 16$ $= -6$ check $\left\{ \begin{array}{l} -2(-5 + 8) \\ = -2 \times 3 \\ = -6 \end{array} \right.$
c. $3 \times (-4 - 5) + 13$ $= 3 \times -4 - 3 \times 5 + 13$ $= -12 - 15 + 13$ $= -12 - 15 + 13$ $= -27 + 13$ $= -14$ check $\left\{ \begin{array}{l} 3 \times (-4 - 5) + 13 \\ = 3 \times -9 + 13 \\ = -27 + 13 \\ = -14 \end{array} \right.$	d. $-4(12 - 2) - 9$ $= -4 \times 12 - -4 \times 2 - 9$ $= -48 + 8 - 9$ $= -48 + 8 - 9$ $= -40 - 9 = -49$ check $\left\{ \begin{array}{l} -4(12 - 2) - 9 \\ = -4 \times 10 - 9 \\ = -40 - 9 \\ = -49 \end{array} \right.$

Q4: a) Work out these calculations.

i. $(-2)^2 = -2 \times -2 = 4$

ii. $(-5)^2 = -5 \times -5 = 25$

iii. $(-10)^2 = -10 \times -10 = 100$

iv. $(-12)^2 = -12 \times -12 = 144$

b) Write the positive and negative square roots of these numbers.

i. $\sqrt{9} = 3$ and -3

ii. $\sqrt{16} = 4$ and -4

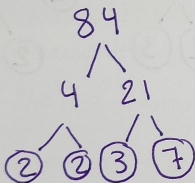
iii. $\sqrt{49} = 7$ and -7

iv. $\sqrt{196} = 14$ and -14

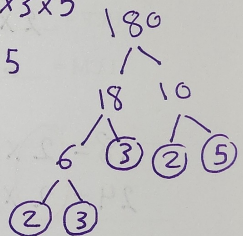
1.2 Prime factor decomposition

Q5: Write each number as a product of its prime factors.

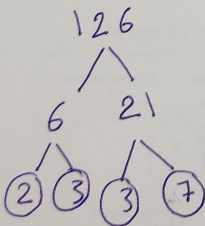
a) $84 = 2 \times 2 \times 3 \times 7 = 2^2 \times 3 \times 7$



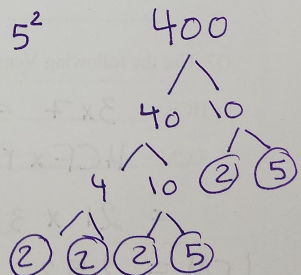
b) $180 = 2 \times 2 \times 3 \times 3 \times 5$
 $= 2^2 \times 3^2 \times 5$



c) $126 = 2 \times 3 \times 3 \times 7 = 2 \times 3^2 \times 7$



d) $400 = 2 \times 2 \times 2 \times 2 \times 5 \times 5$
 $= 2^4 \times 5^2$



Q6: Use prime factor decomposition to find the HCF and the LCM of each pair of numbers.

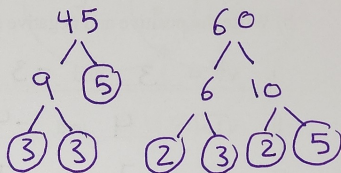
a) 45 and 60

$$\text{HCF} = \underline{3 \times 5 = 15}$$

$$\text{LCM} = \underline{15 \times 2 \times 2 \times 3 = 180}$$

$$45 = 3 \times 3 \times 5$$

$$60 = 2 \times 2 \times 3 \times 5$$



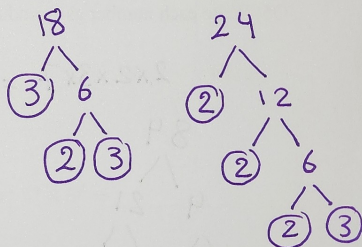
b) 18 and 24

$$\text{HCF} = \underline{2 \times 3 = 6}$$

$$\text{LCM} = \underline{6 \times 2 \times 2 \times 3 = 72}$$

$$18 = 2 \times 3 \times 3$$

$$24 = 2 \times 2 \times 2 \times 3$$



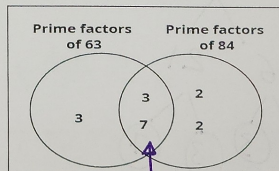
Q7: Use the following Venn diagram to find the HCF and the LCM of 63 and 84

$$\text{HCF} = \underline{3 \times 7 = 21}$$

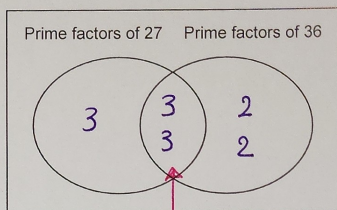
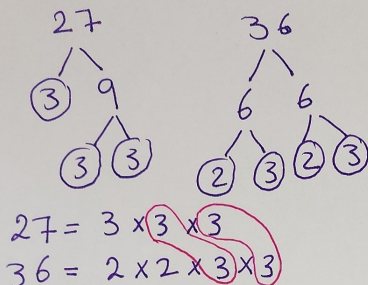
$$\text{LCM} = \underline{\text{HCF} \times \text{remaining}}$$

$$= 21 \times 3 \times 2 \times 2$$

$$\text{LCM} = 252$$



Q8: a) Write the prime factors of 27 and 36 in this Venn Diagram.



b) Find the HCF and the LCM of 27 and 36.

HCF = $3 \times 3 = 9$

LCM = $\text{HCF} \times \text{Remaining}$
 $= 9 \times 2 \times 2 \times 3$

LCM = 108

1.3 Using indices

Q9. Write each of these as a single power.

a) $2^3 \times 2^2 =$ _____

b) $5^4 \times 5^8 =$ _____

c) $7^2 \times 7^5 \times 7^9 =$ _____

d) $3^5 \div 3^2 =$ _____

e) $6^7 \div 6^3 =$ _____

f) $\frac{8^9}{8^5} =$ _____

g) $(2^2)^3 =$ _____

h) $(3^3)^2 =$ _____

i) $(7^4)^2 =$ _____

j) $\frac{2^3 \times 2^5}{2^4} =$ _____

k) $\frac{5^4}{5 \times 5^2} =$ _____

l) $\frac{10^6 \times 10^5}{10^4 \times 10^7} =$ _____