

## Rosary School \ Marj El Hamam

Name: .....

Date: / 9 / 2025

Subject: Unit (1) Worksheet

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

### 1.1 Calculating with negative numbers

Q1. Work out.

a)  $6 + (-4) = 2$

b)  $-10 + 15 = 5$

c)  $-20 - (-8) = -12$

d)  $-40 + (-25) = -65$

e)  $14 \times (-8) = -112$

f)  $-30 \times 3 = -90$

g)  $-15 \times (-6) = 90$

h)  $18 \times (-7) = -126$

i)  $250 \div (-5) = -50$

j)  $-168 \div 8 = -21$

k)  $-54.27 \div (-9) = 6.03$

l)  $84 \div (-14) = -6$

Q2. Substitute the values into each formula and work out the answers.

a.  $Y = 4x - 5$  when  $x = -7$

$Y = -33$

b.  $V = u + at$  when  $u = 5, a = -8$  and  $t = 4$

$V = -27$

c.  $S = m(p - t)$  when  $m = -4, p = 6$  and  $t = -8$

$S = -56$

d.  $L = a - (2ab + c)$  when  $a = 9, b = -3$  and  $c = 4$

$L = 59$

Q3. Expand the brackets to work these out.

Check your answers using the order of operations.

a. $8 \times (-5 - 2) = -56$	b. $-3(-5 + 9) = -12$
c. $9 \times (-7 - 2) + 23 = -58$	d. $-5(22 - 15) - 8 = -43$

Q4. a) Work out these calculations.

i.  $(-3)^2 = 9$

ii.  $(-8)^2 = 64$

iii.  $(-13)^2 = 169$

iv.  $(-14)^2 = 196$

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

i.  $\sqrt{64} = 8$  and -8

ii.  $\sqrt{144} = 12$  and -12

iii.  $\sqrt{225} = 15$  and -15

iv.  $\sqrt{169} = 13$  and -13

## 1.2 Prime factor decomposition

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

a.  $96 = 3 \times 2^5$

b.  $150 = 2 \times 3 \times 5^2$

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c.  $108 = 2^2 \times 3^3$

d.  $300 = 2^2 \times 3 \times 5^2$

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

a. 25 and 50

The HCF = 25

The LCM = 50

b. 30 and 65

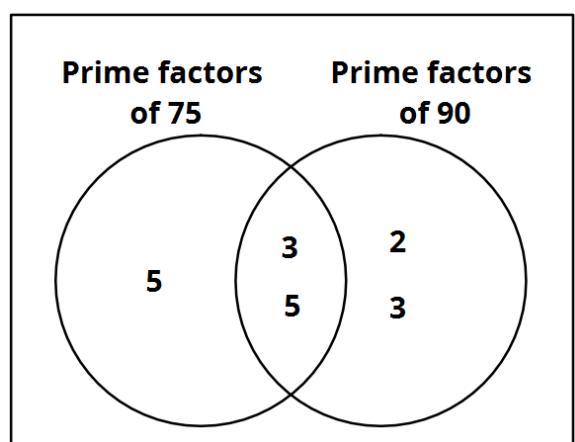
The HCF = 5

The LCM = 390

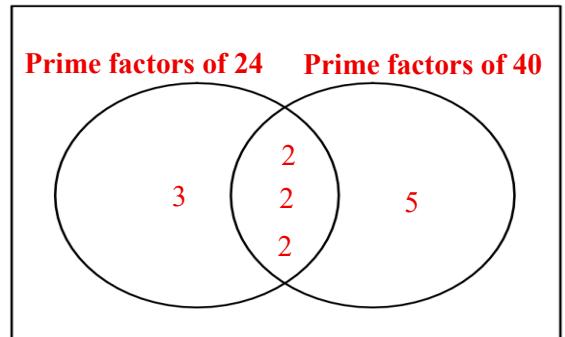
Q7. Use the following Venn diagram to find the HCF and the LCM of 75 and 90

The HCF = 15

The LCM = 450



Q8. a. Write the prime factors of 24 and 40 in this Venn Diagram.



b. Find the HCF and the LCM of 24 and 40.

The HCF = 8

The LCM = 120

### 1.3 Using indices

Q9. Write each of these as a single power.

a.  $3^4 \times 3^2 = 3^6$

b.  $6^7 \times 6^8 = 6^{15}$

c.  $2^3 \times 2^7 \times 2^8 = 2^{18}$

d.  $8^{12} \div 8^5 = 8^7$

e.  $11^9 \div 11^3 = 11^6$

f.  $\frac{10^6}{10^4} = 10^2$

g.  $(4^5)^2 = 4^{10}$

h.  $(9^6)^3 = 9^{18}$

i.  $(5^4)^6 = 5^{24}$

j.  $\frac{3^3 \times 3^7}{3^5} = 3^5$

k.  $\frac{6^8}{6 \times 6^7} = 6^0 = 1$

l.  $\frac{12^8 \times 12^7}{12^6 \times 10^3} = 12^6$

Q10. Write each calculation as a single power.

a.  $8^5 \times 64 \times 512 = 8^{10}$

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b.  $\frac{4^9}{256} = 4^5$

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c.  $\frac{81 \times 729}{9^2} = 9^2$

## 1.4 Priority of operations

Q11. Make the calculation correct by putting in a set of brackets.

a.  $(10 - 4 \times 3) + 2 = 0$

b.  $35 - 3^3 \div (4 + 5) = 32$

c.  $(7 - 2) \times 3^2 + 16 = 61$

d.  $100 - 6 \times (2 + 2)^2 = 4$

Q12. Work out.

a.  $3 + 4^3 = 67$

b.  $\sqrt{49} + 9^2 = 88$

c.  $(8 + 4^3) \div 2 = 36$

d.  $\sqrt{121} + (6^2 - 8) \div 2 = 25$