Rosary School \ Marj Elhamam

Name: _____ Date: / 9 / 2025

Subject: Subject: Practice worksheet (2) / unit (1) Grade : 7 ( )

Number

1.1 Calculating with negative numbers

Q1. Work out.

a) 6 + (-4) =

b) -10 + 15 =

c) -20 - (-8) =

d) -40 + (-25) =

e) 14 × (-8) =

f) -30 × 3 =

g) -15 × (-6) =

h) 18 × (-7) =

i) 250 ÷ (-5) =

j) -168 ÷ 8 =

k) -54.27 ÷ (-9) =

l) 84 ÷ (-14) =

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

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

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

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

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

Q3. Expand the brackets to work these out.

Check your answers using the order of operations.

a. $8 \times (-5 - 2)$	b. $-3\,(-5 + 9)$
c. $9 \times (-7 - 2) + 23$	d. $-5\,(22 - 15) - 8$

Q4. a) Work out these calculations.

i. $(-3)^2 =$

ii. $(-8)^2 =$

iii. $(-13)^2 =$

iv. $(-14)^2 =$

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

i. $\sqrt{64} =$

ii. $\sqrt{144} =$

iii. $\sqrt{225} =$

iv. $\sqrt{169} =$

1.2 Prime factor decomposition

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

a. 96	b. 150
c. 108	d. 300

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

a. 25 and 50

The HCF =

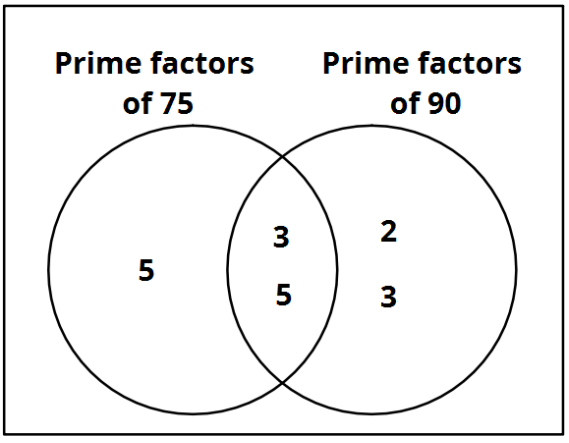
The LCM =

b. 30 and 65

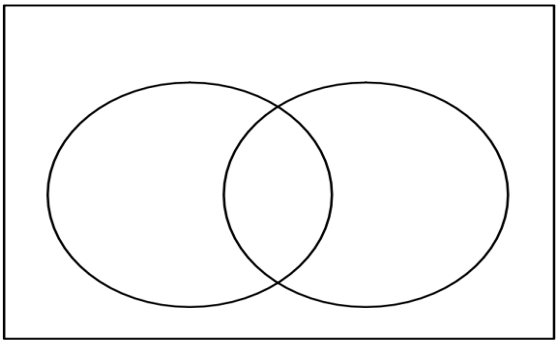
The HCF =

The LCM =

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



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 =

The LCM =

1.3 Using indices

Q9. Write each of these as a single power.

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

b. $6^7 \times 6^8 =$

c. $2^3 \times 2^7 \times 2^8 =$

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

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

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

g. $(4^5)^2 =$

h. $(9^6)^3 =$

i. $(5^4)^6 =$

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

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

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

Q10. Write each calculation as a single power.

a. $8^5 \times 64 \times 512 =$

b. $\frac{4^9}{64}$

c. $\frac{81 \times 729}{9^4}$

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. $3 + 4^3 =$

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

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

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

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Equations and formulae

❖ 2.1 Solving One-Step Equations

Q1: Solve each equation. Show your working.

a) $x - 8 = 15$

b) $y + 6 = 20$

c) $7t = 49$

d) $\frac{m}{4} = 9$

e) $a - 12 = 5$

Q2: Substitute the values given into each formula.

Solve the equation to find the value of the unknown

a) $t = k - 6$ Find k when $t = 48$

b) $s = 8 + n$ Find n when s = 50

c) $y = kx$ Find k when y = 72 and x = 8

$d) T = \frac{P}{4}$ Find P when T =16

❖ 2.2 Solving Two-Step Equations

Q3: Solve each equation step by step.

a) $3x + 5 = 20$ b) $2y - 7 = 9$

c) $\frac{n}{3} + 4 = 10$ d) $9p - 6 = 30$

e) $4q + 2 = 18$

❖ 2.3 More Complex Equations

Q4: Solve the following.

a) $5(x - 1) = 20$

b) $3y + 4 = 2y + 10$

c) $2(m + 6) = m + 14$

d) $8a - 3 = 2a + 15$

e) $\frac{(3x + 7)}{2} = 10$

❖ 2.4 Working with Formulae

Q5:

a) The area of a rectangle is given by $A = lw$.
If the area is 84 cm² and the length is 12 cm , find the width.

b) The formula for speed is $s = \frac{d}{t}$.
A train travels 300 km in 5 hours. What is its average speed?

c) The perimeter of a rectangle is given by $P = 2l + 2w$.
If the perimeter is 64 m and the length is 18 m, find the width.

Q6: Write a formula for converting.

a) Minutes to seconds

b) days to years

c) years to weeks

Challenge Question:

Solve: $\frac{3\,(x-2)}{3} = 2x + 2.$

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