

MATHEMATICS

2 ESO

WORKSHEETS

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CONTENTS

Unit 0: Saying numbers	5
Unit 1: Natural numbers	6
Unit 2: Fractions	11
Unit 3: Decimal numbers	15
Unit 4: Sexagesimal system	23
Unit 5: Algebraic expressions	26
Unit 6: First degree and second degree equations	36
Unit 7: Simultaneous equations	44
Unit 8: Numerical proportion	49
Unit 9: Geometrical proportion	53
Unit 10: Plane shapes. Pythagoras' theorem. Areas	57
Unit 11: 3-D shapes: Areas and Volumes.	60
Unit 12: Functions	63
Unit 13: Statistics	67

UNIT 0: SAYING NUMBERS**1. Write the following numbers using digits:**

- Three hundred and ninety thousand ≡ _____
- Ten thousand, six hundred and three ≡ _____
- One hundred and nine thousand and nine ≡ _____
- Thirty million, three hundred and fourteen ≡ _____
- Twelve million, fifty-six ≡ _____
- Eight hundred thousand and sixty ≡ _____
- Five thousand, two hundred and thirty ≡ _____
- Sixteen thousand, six hundred ≡ _____
- Ten thousand and seventeen ≡ _____
- Eighty thousand, seven hundred and nine ≡ _____
- Thirty- four thousand, two hundred ≡ _____
- Twelve million, five hundred thousand and one ≡ _____

2. Write down how these numbers are read:

- 7.006 ≡ _____
- 2.043 ≡ _____
- 9.208 ≡ _____
- 54.678 ≡ _____
- 612.015 ≡ _____
- 2.410.000 ≡ _____
- 34.101.237 ≡ _____
- 10.006.080 ≡ _____
- 45.007.405 ≡ _____
- 92.406.008 ≡ _____
- 740.015.060 ≡ _____
- 8.000.002.009 ≡ _____

UNIT 1: INTEGERS**1. Remove the parentheses and obtain the result:**

a) $5 - (-9) =$

b) $-7 - (-8) + 4 =$

c) $-6 + (-4) + 3 =$

d) $9 + (7 - 10) =$

e) $9 + (-4) - (-6) =$

f) $11 - (-3 - 4) =$

g) $10 + (7 - 12) =$

h) $-7 - (5 - 9) =$

i) $12 - (5 - 8) =$

j) $15 + (-3 - 9) - 2 =$

k) $-8 + (-3 - 6) =$

l) $-13 + (7 - 11) - 5 =$

m) $15 - (-3 - 9) - 2 =$

n) $65 - (-25 - 45) =$

o) $40 - (25 - 15) =$

p) $19 - 24 - 11 + 7 - 15 =$

q) $-12 - 23 - (-7 - 9) =$

r) $8 - (-11 - 17) - 32 =$

s) $7 + (-14 - 1) - 4 =$

t) $-6 - (-9 + 8) - 5 =$

2. Add parentheses if necessary to correct the following expressions:

a) $7 - 5 + 2 = 0$

b) $-3 + 11 - 6 = -20$

c) $1 + 3 - 7 - 6 = +3$

d) $10 - 4 + 2 = +4$

e) $-4 - 5 - 6 = -3$

f) $-4 + 7 - 7 = -18$

g) $12 - 7 - 5 + 6 = 16$

h) $+2 - 1 - 6 + 5 = 0$

i) $-9 - 6 - 4 + 1 = -12$

j) $-3 - 7 - 6 - 9 = +1$

1. Match each expression with its correspondent result:

$14 - (-3 + 10)$	$-(-5 - 3) + 7$	$1 - (-2 - 12) - 6$	$-7 + 9 - (-3 + 10)$	$-(-7 + 5) - (9 - 3)$
15	9	7	-4	-5

2. Solve the following calculations (try to do them mentally if possible):

a) $(+4) \cdot (-3) \cdot (+2) =$

b) $(-2) \cdot (+6) \cdot (-1) =$

c) $(-2) \cdot (-5) \cdot (-6) =$

d) $(-7) \cdot (-2) \cdot (+3) =$

e) $(+3) \cdot (-4) \cdot (-1) =$

f) $(-4) \cdot (+5) \cdot (+2) =$

g) $(-1) \cdot (+6) \cdot (-3) =$

h) $(-3) \cdot (-3) \cdot (-3) =$

3. Calculate:

a) $(+8) : (-2) =$

b) $(-10) : (-5) =$

c) $(+9) : (-3) \cdot (+2) =$

d) $(-4) : (-2) \cdot (+3) =$

e) $(-20) : (-10) \cdot (-1) =$

f) $(-3) \cdot (-15) : (-5) =$

4. Do the following calculations remembering the hierarchy of the operations:

a) $[7 \cdot (-6)] : (-3) =$

b) $7 \cdot [(-6) : (-3)] =$

c) $(-40) : [(-2) \cdot (+5)] =$

d) $[(-4) : (-2)] \cdot (+5) =$

e) $-(-16) : [(+2) \cdot (-2)] =$

f) $(45 : 15) \cdot (-6) =$

g) $7 \cdot [(-5) \cdot (-2)] =$

h) $[(-9) \cdot (+2)] : (-3) =$

i) $[-(-3) \cdot (-2)] : (+3) =$

j) $- [(+4) : (-2)] : (-2) =$

1. Express as a power:

a) $2^3 \cdot 2^5 =$

b) $3^{12} : 3^4 =$

c) $5^3 : 5^3 =$

d) $(-3)^4 \cdot (-3)^5 =$

e) $(-2)^3 : (-2) =$

f) $(-5) : (-5) =$

g) $(6^3)^5 =$

h) $(3^0)^4 =$

i) $(-2)^2 \cdot 2^3 =$

j) $((-3)^2)^4 =$

k) $((-4)^3)^2 =$

l) $5^3 : (-5)^2 =$

2. Express as a power:

a) $(3^5 : 3^2) \cdot 3^4 =$

b) $(-13)^3 \cdot (-13)^5 : (-13) =$

c) $(-5)^4 : [(-5)^5 : (-5)^3] =$

d) $[(-2)^3 \cdot (-2)^2]^4 \cdot (-2)^2 =$

e) $[(6^3)^5 : (6^4)^2] : (6) =$

f) $(-7)^5 : [(-7) : (-7)] =$

3. Express as a power of a power:

a) $3^6 =$

b) $2^{14} =$

c) $5^{25} =$

d) $7^{12} =$

e) $(-2)^4 =$

f) $(-3)^8 =$

g) $(-7)^{15} =$

h) $(-11)^{21} =$

4. Express as products of powers with prime bases and simplify if possible:

a) $4 \cdot 9 =$

b) $25 \cdot 16 =$

c) $45 \cdot 32 =$

d) $16 \cdot 4 =$

e) $8^3 \cdot 4 =$

f) $9^2 \cdot 25^3 =$

g) $12 \cdot 6^2 =$

h) $30^2 \cdot 10^2 =$

i) $14^3 \cdot 49^3 =$

j) $(-15)^2 \cdot (-9)^2 =$

k) $(-12)^3 \cdot (-8)^4 =$

5. Calculate the square root of the following numbers without using your calculator:

a) $\sqrt{100} =$

b) $\sqrt{121} =$

c) $\sqrt{81} =$

d) $\sqrt{169} =$

e) $\sqrt{900} =$

f) $\sqrt{144} =$

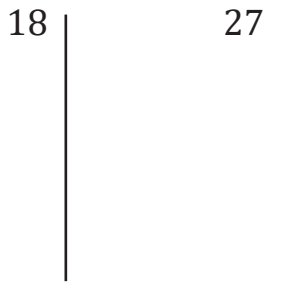
g) $\sqrt{1600} =$

h) $\sqrt{2500} =$

i) $\sqrt{196} =$

1. Calculate the GCD and the LCM of the following sets of numbers:

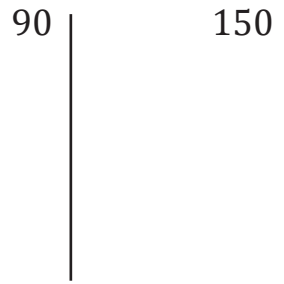
a) 18 and 27



$$\text{GCD}(18, 27) =$$

$$\text{LCM}(18, 27) =$$

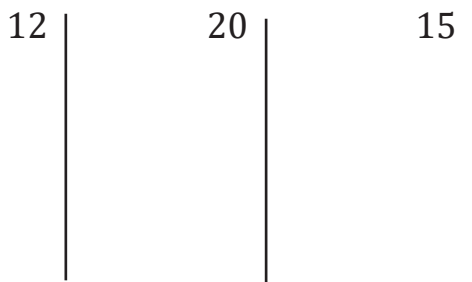
b) 90 and 150



$$\text{GCD}(90, 150) =$$

$$\text{LCM}(90, 150) =$$

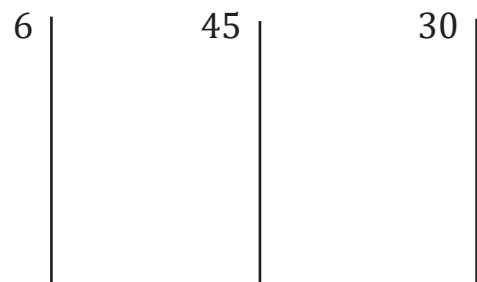
c) 12, 20 and 15



$$\text{GCD}(12, 20, 15) =$$

$$\text{LCM}(12, 20, 15) =$$

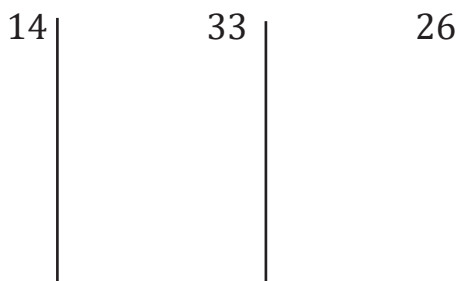
d) 6, 45 and 30



$$\text{GCD}(6, 45, 30) =$$

$$\text{LCM}(6, 45, 30) =$$

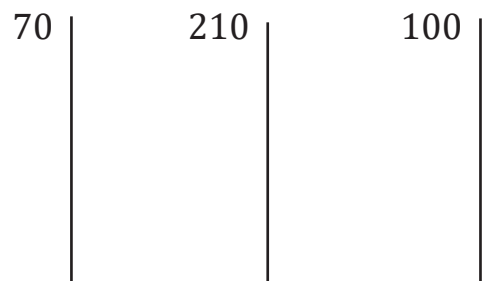
e) 14, 33 and 26



$$\text{GCD}(14, 33, 26) =$$

$$\text{LCM}(14, 33, 26) =$$

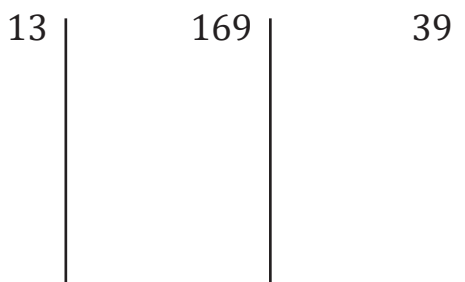
f) 70, 210 and 100



$$\text{GCD}(70, 210, 100) =$$

$$\text{LCM}(70, 210, 100) =$$

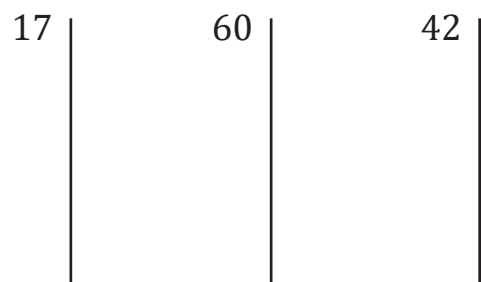
g) 13, 169 and 39



$$\text{GCD}(13, 169, 39) =$$

$$\text{LCM}(13, 169, 39) =$$

h) 17, 60 and 42



$$\text{GCD}(17, 60, 42) =$$

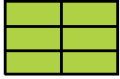
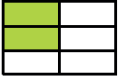
$$\text{LCM}(17, 60, 42) =$$



Word problems involving Greatest Common Divisor and Lowest Common Multiple




1. Annie bakes 96 vanilla cookies and 60 fruit cookies to package in little boxes for her friends. She wants to divide them into identical boxes so that each one of them has the same number of each kind of cookie. If she wants each box to have the greatest number of cookies, how many boxes does she need to buy?
2. Think of a number that is divisible by both 9 and 13. What is the smallest number that you can think of?
3. Two Christmas lights are turned on at the same time. One is a blue light and the other is a violet light. The blue one blinks every 6 seconds and the other blinks every 9 seconds. In 90 seconds, how many times will they blink at the same time?
4. Sheila is decorating an events room. She has 150 red flowers, 90 white flowers and 175 yellow flowers. She has decided to make bunches and she wants them to have the same number of flowers of each colour. What is the maximum number of bunches she can make using all the flowers she has?
5. Cathy has two ribbons with lengths of 108cm and 72cm respectively and wants to cut them into pieces of all the same length without remainder. What is the greatest possible length of the pieces?

UNIT 2: FRACTIONS


1. Write down the fraction shown by the coloured part in each section:

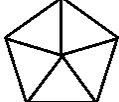
a)   —


b)   —

c)    —

2. Colour each of the following shapes to represent the fractions given:

a)  $\frac{5}{12}$

b)  $\frac{3}{5}$

c)  $\frac{6}{8}$

3. Calculate the corresponding numerical value of the following fractions:

a) $\frac{4}{5} =$ b) $\frac{1}{25} =$ c) $\frac{13}{100} =$ d) $\frac{7}{4} =$ e) $\frac{5}{8} =$

4. Convert into fraction:

a) $0,5 =$ b) $6 =$ c) $0,25 =$ d) $10 =$ e) $1,5 =$

5. Construct chains of equivalent fractions (amplifying or simplifying them):

a) $\frac{15}{21} =$ — = — = — b) $\frac{8}{12} =$ — = — = —

6. Obtain the simplest form in only one step:

a) $\frac{49}{21} =$ b) $\frac{36}{42} =$ c) $\frac{40}{60} =$ d) $\frac{45}{27} =$ e) $\frac{48}{40} =$

7. Insert either $<$, $>$ or $=$ between each couple of fractions to make each statement correct (equalizing denominators):

$\frac{7}{9} \bigcirc \frac{9}{11}$ $\frac{5}{6} \bigcirc \frac{7}{12}$ $\frac{4}{15} \bigcirc \frac{3}{10}$ $\frac{5}{8} \bigcirc \frac{7}{12}$

1. Place the fractions in the correct order (equalizing denominators):

a) $\frac{5}{9}, \frac{6}{7}, \frac{4}{7}$

b) $\frac{5}{6}, \frac{2}{9}, \frac{3}{4}$

c) $\frac{7}{15}, \frac{8}{25}, \frac{2}{5}$

$$\square < \square < \square$$

$$\square > \square > \square$$

$$\square < \square < \square$$

2. Calculate:

a) $\frac{2}{3} + \frac{7}{3} =$

b) $\frac{8}{5} - \frac{2}{5} =$

c) $-\frac{4}{7} + \frac{10}{7} =$

d) $-\frac{3}{4} - \frac{5}{4} =$

e) $\frac{4}{6} + \frac{5}{3} =$

f) $\frac{7}{4} - \frac{3}{8} =$

g) $\frac{6}{15} - \frac{12}{5} =$

h) $-\frac{5}{14} - \frac{2}{7} =$

i) $-\frac{5}{4} + \frac{3}{12} =$

j) $\frac{3}{6} + \frac{12}{10} =$

k) $-\frac{9}{8} + \frac{6}{20} =$

l) $-\frac{9}{7} + 5 =$

m) $-8 - \frac{6}{9} =$

n) $\frac{7}{18} + \frac{3}{2} - 2 =$

o) $-\frac{2}{15} - \frac{6}{9} + 4 =$

1. Calculate:

a) $-\frac{3}{4} + \frac{9}{10} + 3 =$

b) $3 - \frac{7}{18} - \frac{5}{2} =$

c) $-2 - \frac{1}{8} + \frac{5}{36} - 1 =$

d) $1 - \frac{5}{12} + \frac{7}{15} + 5 =$

e) $-4 - \frac{6}{7} + 3 - \frac{2}{14} =$

f) $-\frac{3}{63} + \frac{4}{7} + 1 - \frac{1}{21} =$

2. Solve:

a) $-\left(\frac{2}{3} + \frac{1}{6}\right) - \frac{5}{12} =$

b) $\left(\frac{4}{5} - \frac{3}{15}\right) - \left(\frac{1}{10} + \frac{2}{5}\right) =$

1. Calculate:

a) $\frac{3}{2} - \left(\frac{1}{3} - \frac{5}{6}\right) - \frac{7}{2} =$

b) $3 - \left(\frac{4}{5} + \frac{2}{15}\right) \cdot \frac{9}{2} =$

c) $-2 - \left(\frac{1}{5} + \frac{2}{7}\right) + \frac{6}{35} =$

d) $1 - \left(\frac{7}{3} - \frac{1}{4}\right) + \frac{5}{12} =$

e) $3 - 2 \cdot \frac{6}{7} + \left(\frac{1}{3} - 1\right) =$

f) $-\frac{3}{8} + \frac{1}{2} \cdot 6 - \frac{5}{4} \cdot 2 =$

g) $6 - \left(\frac{4}{3} - \frac{1}{7}\right) - \frac{8}{21} =$

h) $\left(\frac{3}{5} - \frac{2}{15}\right) - \left(\frac{7}{10} - \frac{3}{5}\right) =$

UNIT 3: DECIMAL NUMBERS

1. Calculate and complete:

<p>a) $12,65 + 2,145 + 24,859 =$</p> $ \begin{array}{r} 12,650 \\ + 2,145 \\ \hline 24,859 \end{array} $	<p>b) $2,713 + 0,17 + 124,078 =$</p> $ \begin{array}{r} 2,713 \\ + 0,17 \\ \hline 124,078 \end{array} $
<p>c) $0,65 + 32,102 - 14,678 =$</p> $ \begin{array}{r} + 0,65 \\ 32,102 \\ \hline \boxed{} \end{array} \quad \begin{array}{r} \boxed{} \\ - 14,678 \\ \hline \end{array} $	<p>d) $12,34 - 8,119 + 34,13 =$</p> $ \begin{array}{r} - 12,34 \\ 8,119 \\ \hline \boxed{} \end{array} \quad \begin{array}{r} + \boxed{} \\ 34,13 \\ \hline \end{array} $
<p>e) $43,125 - (3,56 + 21,094) =$</p> $ \begin{array}{r} + 3,56 \\ 21,094 \\ \hline \boxed{} \end{array} \quad \begin{array}{r} 43,125 \\ - \boxed{} \\ \hline \end{array} $	<p>f) $28,324 - (23,67 - 14,115) =$</p> $ \begin{array}{r} - 23,67 \\ 14,115 \\ \hline \boxed{} \end{array} \quad \begin{array}{r} - 28,324 \\ \\ \hline \end{array} $
<p>g) $-1,25 + 12,456 - (-3,86 + 12,45) =$</p> $ \begin{array}{r} - 12,45 \\ 3,86 \\ \hline \boxed{} \end{array} \quad \begin{array}{r} 12,456 \\ - 1,25 \\ \hline \boxed{} \end{array} $ $ \begin{array}{r} \\ - \\ \hline \end{array} $	<p>h) $-(-0,45 + 8,423) - (-19,78 - 3,69) =$</p> $ \begin{array}{r} - 8,423 \\ 0,45 \\ \hline \boxed{} \end{array} \quad \begin{array}{r} + 19,78 \\ 3,69 \\ \hline \boxed{} \end{array} $ $ \begin{array}{r} \\ - \\ \hline \end{array} $