

Handout for Gr 8 workshop on 28 APRIL 2026

Tuesday, 28 April 2026 09:33



Handout
for Gr 8 w...

Grade 8 Mathematics

Revision workshop on 28th April 2026



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inspired by the love of Christ

Questions to revise work from term 1

1. Simplify:

a. $3 - (-1) + (-2)$

$$\begin{aligned} &= 3 + 1 - 2 \\ &= 4 - 2 \\ &= \underline{2} \end{aligned}$$

c. $(2 - 5)(-3 + 1)(-5 - 1)$

$$\begin{aligned} &= (-3)(-2)(-6) \\ &= 6(-6) \\ &= \underline{-36} \end{aligned}$$

e. $-10 - 5 \times (2 - 7)$

$$\begin{aligned} &= -10 - 5 \times (-5) \\ &= \underline{-10 + 25} \text{ OR } \underline{+25 - 10} \\ &= \underline{15} \end{aligned}$$

g. $\frac{2}{5} + 50\% - 0.08$

$$\begin{aligned} &= \frac{40}{100} + 50\% - \frac{8}{100} \\ &= 40\% + 50\% - 8\% \\ &= \underline{82\%} \end{aligned}$$

b. $\frac{2}{5} + \frac{1}{3} - \frac{1}{2}$

$$\begin{aligned} &= \frac{12}{30} + \frac{10}{30} - \frac{15}{30} \\ &= \underline{\frac{7}{30}} \end{aligned}$$

d. $3\frac{1}{2} \div 5\frac{1}{4}$

$$\begin{aligned} &= \frac{7}{2} \div \frac{21}{4} \\ &= \frac{7}{2} \times \frac{4}{21} \\ &= \underline{\frac{2}{3}} \end{aligned}$$

$$\begin{aligned} \frac{28}{42} &= \frac{14}{21} \\ &= \underline{\frac{2}{3}} \end{aligned}$$

f. $\sqrt[3]{-8} + \sqrt{49}$

$$\begin{aligned} &= -2 + 7 \\ &= \underline{5} \end{aligned}$$

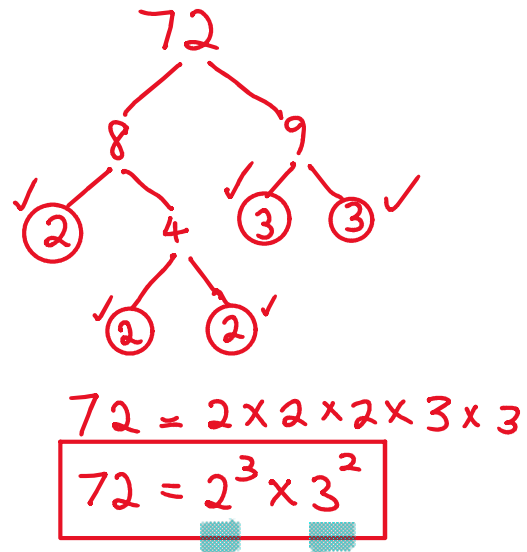
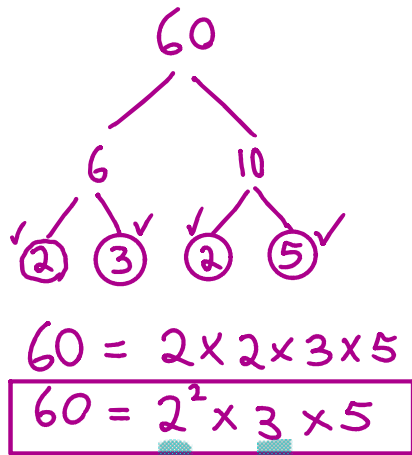
OR

h. $30\% \text{ of } 120 + \frac{2}{5} \text{ of } 35$

$$\begin{aligned} &= \frac{30}{100} \times \frac{120}{1} + \frac{2}{5} \times \frac{35}{1} \\ &= 36 + 14 \\ &= \underline{50} \end{aligned}$$

$$\frac{2}{5} \overset{\times 3}{\curvearrowright} \frac{6}{15} = \frac{6}{15} \overset{\times 3}{\curvearrowright} \frac{18}{45}$$

2. Prime factorise 60 and 72 then use your answers to determine:



- a. The HCF of 60 and 72

$$\text{HCF} = 2^2 \times 3 = 12$$

- b. The LCM of 60 and 72

$$\text{LCM} = 2^3 \times 3^2 \times 5^1 = 360$$

- c. The smallest number which 72 must be multiplied by to make:

- i. A perfect square

2

to get 144

$$(2 \times 2 \times 3) \times (2 \times 3)$$

- ii. A perfect cube

3

to get 216

$$(2 \times 3) (2 \times 3) (2 \times 3)$$



3. 37 litres of diesel costs R1073.

How many litres can I buy with R650?

22,4l

How much will 80 litres cost?

R 2320

l	R
$\frac{37}{1073}$	$\frac{1073}{1}$
$\times 65$	$\times 650$
$\frac{37}{1073} \times 650$	$\frac{1073}{37}$
1	$\frac{1073}{37} \times 80$
80	



4. What will a soccer ball priced R360 cost if a 20% discount is given?

R288

Price	%
$\frac{360}{100}$	$\frac{100}{1}$
$\frac{360}{100} \times 80$	80

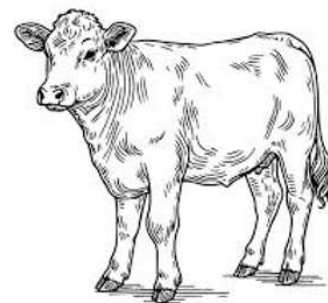


3:18

5. A farmer buys a cow for R6500. How much must she sell it for if she wishes to make a 15% profit?

Price	%
6500	100
$\frac{6500}{100}$	1
65×115	115

R 7475



6. A cricket bat is marked down from R630 to R529,20. What is the percentage discount being given?

$$\begin{aligned}\frac{\text{New}}{\text{OLD}} &= \frac{529,20}{630} \\ &= 0,84 \\ &= 84\%\end{aligned}$$



$$\underline{100\% - 84\% = 16\% \rightarrow}$$

7. A shopkeeper buys a dress for R320 and sells it for R358,40. What is his percentage profit?

$$\begin{aligned}\frac{\text{New}}{\text{OLD}} &= \frac{358,40}{320} \\ &= 1,12 = 112\% \\ \underline{12\% \text{ profit} \rightarrow}\end{aligned}$$



$$7 = 7^1 \quad \frac{5}{1}$$

Exponents

a^b

a is the base and b is the exponent (power or index)

$$2 \times 3^2 = 2 \times 9 = 18$$

Exponents come first!

$$-2^2 = -4$$

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

Know the rules!



$$2 + (-2) = 0$$

Where a number does not have a power, it is an invisible 1, e.g., $5 = 5^1$

Rules and definitions in English	Examples
When we multiply numbers with <u>same base</u> we ADD exponents	$3^4 \times 3^3$ $3 \times 3 \times 3 \times 3 \times 3 \times 3 \times 3 = 3^7$
When we divide numbers with <u>same base</u> we SUBTRACT exponents	$\frac{5^6}{5^2} = \frac{5 \times 5 \times 5 \times 5 \times 5 \times 5}{5 \times 5} = 5 \times 5 \times 5 \times 5 = 5^4$
When a <u>product</u> is raised to a power EVERY factor is raised to that power	$(2 \times 3)^3 = 2 \times 3 \times 2 \times 3 \times 2 \times 3 = 2^3 \times 3^3$
When a <u>quotient</u> (fraction) is raised to a power both top and bottom get power	$\left(\frac{4}{5}\right)^3 = \frac{4}{5} \times \frac{4}{5} \times \frac{4}{5} = \frac{4^3}{5^3}$
When a power is raised to a power we multiply the powers	$(2^3)^2 = 2^3 \times 2^3 = 2^6$ $(4^2)^4 = 4^2 \times 4^2 \times 4^2 \times 4^2 = 4^8$
Any number raised to power 0 = 1	$\frac{7^5}{7^5} = \frac{7 \times 7 \times 7 \times 7 \times 7}{7 \times 7 \times 7 \times 7 \times 7} = 1$

$$2^{20} \times 2^{40} = 2^{60}$$

$$\frac{7^{93}}{7^{90}} = 7^3$$

$$(4 \times 5 \times 11)^2 = 4^2 \times 5^2 \times 11^2$$

$$\left(\frac{5}{7}\right)^{19} = \frac{5^{19}}{7^{19}}$$



Simplify the following:

a. $2^5 \times 2^2$

$= \underline{2^7}$ ✓ 4^7 ✗ (sad face)

b. $3 \times 5^5 \times 2 \times 5^9$

$= \underline{6 \times 5^{16}}$

c. $\frac{6^{19}}{6^{13}}$

$= \underline{6^6}$

d. $(2^2)^5$

$= \underline{2^{10}}$

$2^2 \times 2^2 \times 2^2 \times 2^2 \times 2^2$
 $2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2$
 $\underline{2^{10}}$

e. $(2^2 \times 3)^5 \times 2^3$

$= (2^2)^5 \times 3^5 \times 2^3$
 $= 2^{10} \times 3^5 \times 2^3$
 $= \underline{2^{13} \times 3^5}$

f. $\frac{2^{16} \times 3^{11}}{2^9 \times 3^7}$

$= \underline{2^7 \times 3^4}$

g. $\frac{h^3}{h^3} + 5^0 + 6 \times 3^0$

$= h^0 + 1 + 6 \times 1$
 $= 1 + 1 + 6 \times 1$
 $= 1 + 1 + 6$
 $= \underline{8}$

h. $\left(\frac{2}{3}\right)^7 \times 3^{11}$

$= \frac{2^7}{3^7} \times \frac{3^{11}}{1}$
 $= \underline{2^7 \times 3^4}$



Number patterns

Try to give the next three terms in the following sequences:

3 ; 7 ; 11 ; 15 ; **19 ; 23 ; 27**

2 ; 4 ; 8 ; 16 ; **32 ; 64 ; 128**

1 ; 4 ; 9 ; 16 ; 25 ; **36 ; 49 ; 64**

19 ; 13 ; 7 ; 1 ; **-5 ; -11 ; -17**

1 000 ; 100 ; 10 ; 1 ; **$\frac{1}{10}$; $\frac{1}{100}$; $\frac{1}{1000}$**

1 ; 2 ; 4 ; 7 ; 11 ; 16 ; **22 ; 29 ; 37**

Consider the following patterns and try to complete the tables which follow:

fig. 1



fig. 2

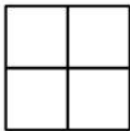


fig. 3

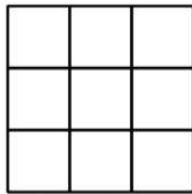


fig. 4

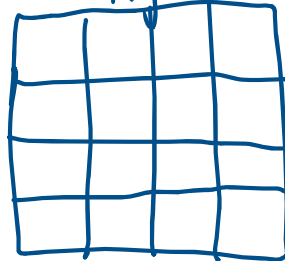


Fig.	1	2	3	4	5	9	$\sqrt{144}$	n	$\sqrt{p}$
Number of small squares	1	4	9	16	$5 \times 5 = 5^2 = 25$	$9^2 = 81$	144	n^2	p

variable



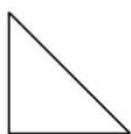


Fig. 1

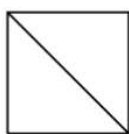


Fig. 2

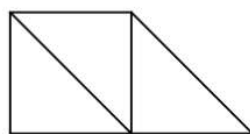


Fig. 3

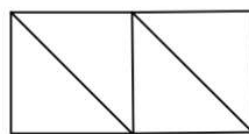
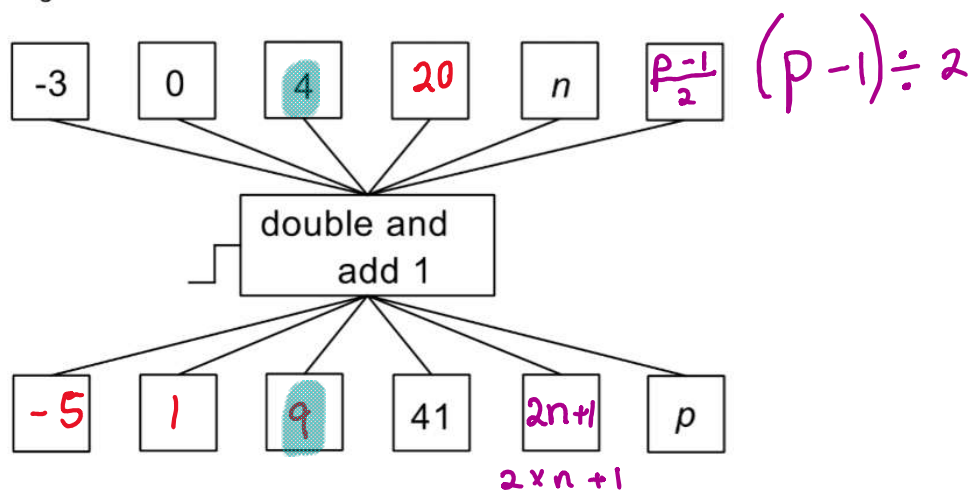


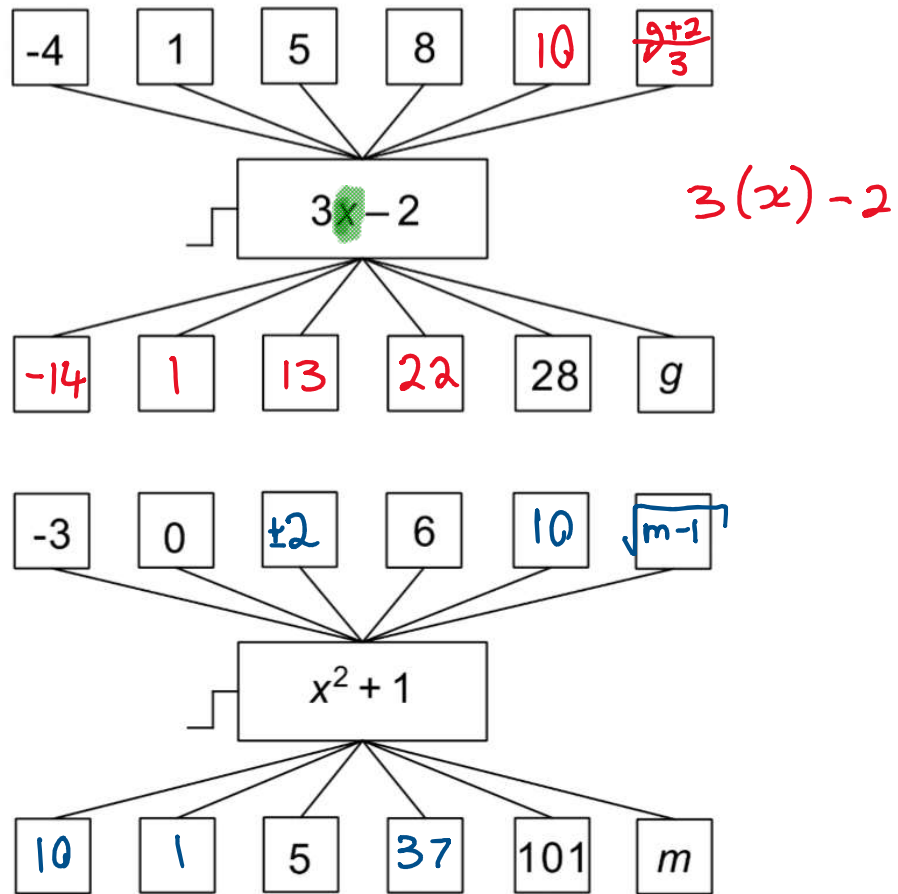
Fig. 4

Fig.	1	2	3	4	5	n	t	$\frac{p-1}{2}$	20
Number of triangles	1	2	3	4	5	n	t		20
Number of lines	3	5	7	9	11	$2 \times n + 1$	$2t + 1$	p	41

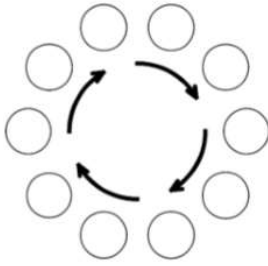
2 fig. no + 1

Complete the following number machines:





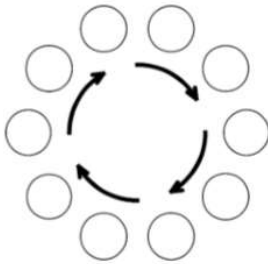
Shell Sheet



Start with:	Start with:	Start with:	Start with:	Start with:	Start with:

|

Shell Sheet



Start with:	Start with:	Start with:	Start with:	Start with:	Start with:

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