Mental maths (multiplication)

Activity 1

1. How many can you do in one minute? Write your total here: ☐

a)	$12 \times 2 =$ _____	**b)**	$3 \times 11 =$ _____	**c)**	$2 \times 3 =$ _____
d)	$3 \times 9 =$ _____	**e)**	$4 \times 6 =$ _____	**f)**	$6 \times 4 =$ _____
g)	$5 \times 7 =$ _____	**h)**	$7 \times 3 =$ _____	**i)**	$5 \times 9 =$ _____
j)	$9 \times 8 =$ _____	**k)**	$11 \times 11 =$ _____	**l)**	$12 \times 6 =$ _____
m)	$7 \times 7 =$ _____	**n)**	$10 \times 8 =$ _____	**o)**	$9 \times 9 =$ _____

2. Complete.

a)	$4 \times$ _____ $= 32$	**b)**	_____ $\times 8 = 40$	**c)**	$12 \times$ _____ $= 120$
d)	_____ $\times 7 = 49$	**e)**	$5 \times$ _____ $= 45$	**f)**	_____ $\times 6 = 30$
g)	$7 \times$ _____ $= 14$	**h)**	_____ $\times 8 = 24$	**i)**	$10 \times$ _____ $= 80$
j)	$9 \times$ _____ $= 54$	**k)**	_____ $\times 8 = 0$	**l)**	$9 \times$ _____ $= 81$

Activity 2

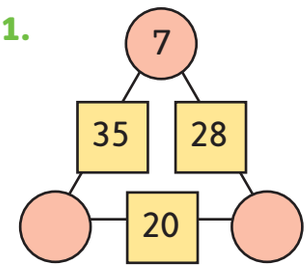
Complete without using a calculator.

1.	$6 \times$ _____ $= 60$	**2.**	$68 \times 1\,000 =$ _____	**3.**	$55 \times 100 =$ _____
4.	$60 \div$ _____ $= 10$	**5.**	$1\,700 \div 100 =$ _____	**6.**	$112 \times 10 =$ _____
7.	_____ $\div 10\,000 = 93$	**8.**	_____ $\times 1\,000 = 9\,300$	**9.**	$1\,550 \times 10\,000 =$ _____
10.	$5{,}5 \div 10 =$ _____	**11.**	$220 \times$ _____ $= 220\,000$	**12.**	$1{,}5 \times 1\,000 =$ _____

Activity 3

Complete so that the product of two numbers in the circles give the number in the square between them.

1.



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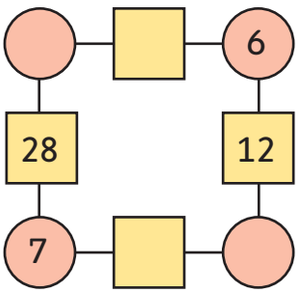

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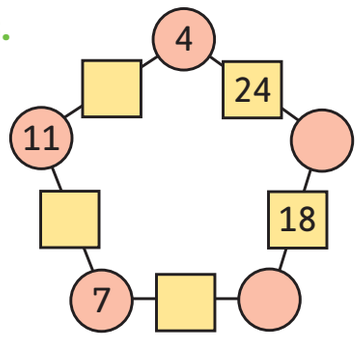


Worksheet 2 Whole numbers

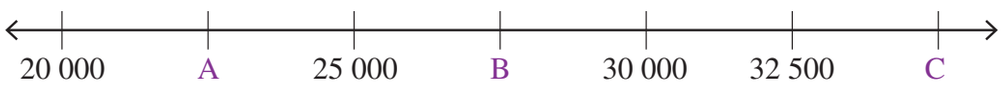
Ordering and comparing

Use the *Digit cards* widget in *Comparing whole numbers*.

Activity 1

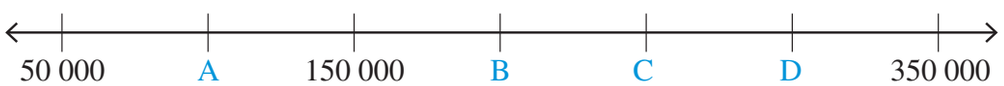
Complete the number lines.

1.



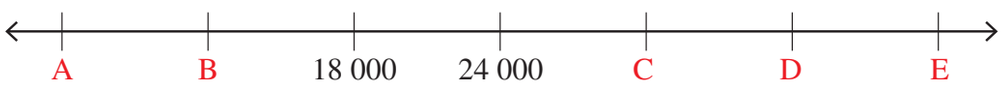
A. _____ B. _____ C. _____

2.



A. _____ B. _____ C. _____ D. _____

3.



A. _____ B. _____ C. _____ D. _____ E. _____

Activity 2

Write the number that is halfway between:

1. 148 240 and 148 250 _____

2. 200 500 and 200 600 _____

3. 384 590 and 384 600 _____

4. 5 100 and 5 200 _____

Activity 3

Fill in >, < or =.

1. 1 255 ☐ 1 188

2. 4 590 ☐ 5 410

3. 7 759 ☐ 8 751

4. 1 574 ☐ 1 978

5. 13 208 ☐ 73 159

6. 169 027 ☐ 229 100

Activity 4

Write the numbers in ascending order.

1. 100 011; 1 121; 10 111; 101 001; 1 020; 10 120; 100

_____

2. 4 505 988; 4 448 500; 1 322 200; 4 850 123; 14 647 800; 14 000

_____

Rounding and representing numbers

Use the *Rounding up or down* widget in *Rounding and estimating*.

Activity 1

The table shows the runs scored by five South African cricketers in one-day matches.

Player	Matches	Runs	Average
Jacques Kallis	323	11 550	45.11
AB de Villiers	223	9 427	54.17
Herschel Gibbs	248	8 094	36.13
Hashim Amla	169	7 696	49.65
Graeme Smith	196	6 989	38.19

1. Write Amla's number of runs in words.

   _____

2. Write the value of the hundreds digit of Kallis's score. _____
3. Write Smith's number of runs in expanded notation.

   _____

4. Round each player's runs first to the nearest 10, then 100 and 1 000.

Player	Runs	Nearest 10	Nearest 100	Nearest 1 000
Jacques Kallis	11 550			
AB de Villiers	9 427			
Herschel Gibbs	8 094			
Hashim Amla	7 696			
Graeme Smith	6 989			

Extension

1. De Villiers played fewer games than Kallis but has a higher batting average. Who do you think is the better player? _____
2. Is 223 (the number of matches played by De Villiers) a prime number? Give a reason.

   _____

Worksheet 4 Whole numbers

Properties of numbers

Activity 1

Name the property of the numbers (associative, distributive and commutative) that makes each statement true.

1. $(4 \times 7) \times 6 = 4 \times (7 \times 6)$ _____
2. $9 + 12 = 12 + 9$ _____
3. $3 \times (4 + 5) = 3 \times 4 + 3 \times 5$ _____
4. $25 + 35 = 35 + 25$ _____
5. $3 + (12 - 9) = (3 + 12) - 9$ _____

Activity 2

Are each of the following true or false? Give a reason.

1. $31 \times 1 = 31$ _____
2. $31 + 0 = 0$ _____
3. $31 \times 0 = 0$ _____
4. $31 \times 10 = 10 \times 31$ _____
5. $31 - 1 = 1 - 31$ _____

Activity 3

Calculate.

1. $800 \div 1$ = _____
2. $880 + 10$ = _____
3. $8\,800 - 1$ = _____
4. $8\,800 - 10$ = _____
5. $8\,000 - 100$ = _____
6. $8\,800 - 110$ = _____

Activity 4

Use the properties of numbers to solve the following problems.

1. $29 \times 4 + 29 \times 7 + 29 \times 10 =$ _____
2. $1\,349 +$ _____ $= 1\,349$
3. $4 \times (50 + 34) =$ _____
4. $1 \times$ _____ $= 348$
5. $32 \times (2 \times 9) = (2 \times$ _____ $) \times$ _____ $=$ _____

Order of operations

Use the *Expression calculator with brackets* and *Broken calculator* widgets in *Introducing grouping symbols.*

Activity 1

Use the correct order of operations to solve.

1. $5 + 2 \times (4 + 7) \times 3$ = _____
2. $9 \times 7 + 5 \times (3 + 4)$ = _____
3. $(6 + 7) \times 5 + 2 \times 4$ = _____
4. $(9 - 4 + 10 \times 8) \div 5$ = _____
5. $(9 + 5 - 6) \times (64 \div 8)$ = _____
6. $(5 \times 3 + 9) \div (16 - 10)$ = _____
7. $(6 + 4 - 10) \div (3 \times (9 + 7))$ = _____
8. $(9 \div 3) \times (6 + 8 - 5 - 4)$ = _____

Activity 2

Draw brackets in the right places to make the expressions true.

1. $6 - 4 \times 4 + 5 = 13$
2. $17 - 8 \div 3 + 1 = 4$
3. $3 + 4 \times 7 - 5 = 14$
4. $36 \div 14 + 4 + 21 = 23$

Activity 3

Jennifer did the following calculations. In each case, state if Jennifer is correct. If not, make the necessary correction.

1. $(3 \times [12 - 9]) \div 3$
   $= (3 \times 3) \div 3$
   $= 9 - 3$
   $= 3$ Correct? _____
2. $68 \div 2 + 2 \times 3$
   $= 68 \div 4 \times 3$
   $= 17 \times 3$
   $= 51$ Correct? _____
3. $64 - 13 \times 4 \div 2$
   $= 51 \times 2$
   $= 102$ Correct? _____
4. $9 + 6 \div 3 - 3$
   $= 15 \div 3 - 3$
   $= 5 - 3$
   $= 2$ Correct? _____

Extension

Draw brackets in the right places to make the expressions true.

1. $2 \times 4 - 1 + 2 = 8$
2. $40 \div 3 + 2 \times 4 = 2$
3. $24 \div 6 - 2 - 1 = 8$
4. $7 + 1 + 12 \div 2 = 10$

Worksheet 6 Whole numbers

Addition

Use the *Split and add robot* widget in *Adding whole numbers*.

Activity 1

Estimate the answer. Then calculate using any strategy. Use a calculator to check.

1. 201 345 + 657 163

Estimate = _____

_____

2. 101 428 + 612 576

Estimate = _____

_____

3. 57 534 + 489

Estimate = _____

_____

4. 15 111 + 202 222

Estimate = _____

_____

Activity 2

Add.

1.
$$\begin{array}{r} 215\,563 \\ +\ 110\,293 \\ \hline \\ \hline \end{array}$$

2.
$$\begin{array}{r} 211\,871 \\ +\ 160\,341 \\ \hline \\ \hline \end{array}$$

3.
$$\begin{array}{r} 42\,986 \\ +\ 137\,457 \\ \hline \\ \hline \end{array}$$

4.
$$\begin{array}{r} 857\,338 \\ +\ 479\,831 \\ \hline \\ \hline \end{array}$$

Activity 3

Calculate.

1. 1 478 924 + 289 123 + 289 123 = _____

2. 4 591 + 67 823 + 421 591 = _____

3. 9 256 + 90 256 + 817 238 = _____

4. 18 625 + 312 589 + 625 841 = _____

Activity 4

Solve. Show your working.

1. Last year, 253 926 people were members of a library. This year, there are 14 895 more people. How many library members are there in total?

_____

2. There are 556 812 people living in one town, and 365 879 living in another town. How many people live in both towns altogether?

_____

Subtraction

Use the *Jump subtraction* widget in *Subtracting whole numbers*.

Activity 1

Estimate and calculate.

1. 310 575 – 121 236

   Estimate = _____

   _____

2. 416 325 – 53 241

   Estimate = _____

   _____

3. 333 689 – 111 257

   Estimate = _____

   _____

4. 317 000 – 106 520

   Estimate = _____

   _____

Activity 2

Subtract.

1. 521 074 − 41 265 = _____

2. 700 049 − 351 732 = _____

3. 731 826 − 411 085 = _____

4. 966 724 − 628 153 = _____

Activity 3

Complete.

1. 256 987 – _____ = 152 100
2. 500 985 – _____ = 367 100
3. _____ – 213 858 = 498 321
4. _____ – 152 865 = 687 163

Activity 4

Solve. Show your working.

1. Jackie wants to buy a house that costs R950 800. She has saved R355 000. How much more money does Jackie need? _____
2. Mihle owes the bank R342 150. She has paid R168 693. How much does she still owe the bank? _____
3. Jason has some money. He inherits R125 000 from his grandfather. He now has R286 922. How much money did he have before the inheritance? _____

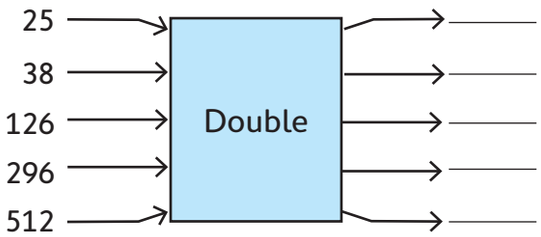
Worksheet 8 Whole numbers

Doubling and halving

Activity 1

Complete the flow charts.

1.



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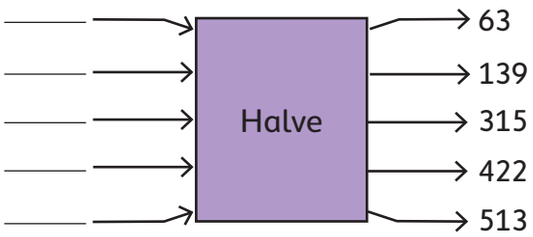

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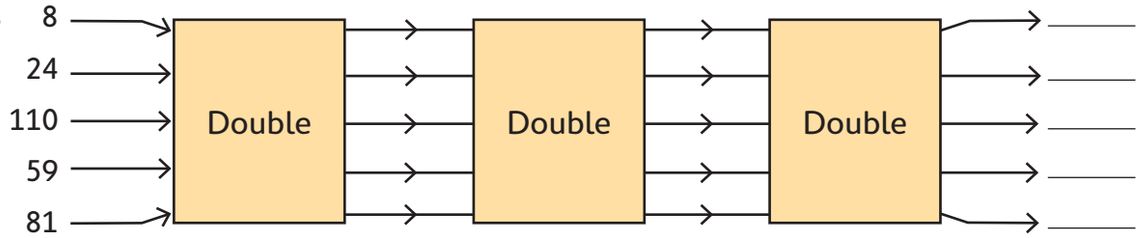

Activity 2

Rewrite these multiplication problems in simpler form. Use doubling or halving. The first one has been done as an example.

1. $4 \times 18 = 8 \times 9 = 72$

2. $5 \times 16 =$ _____ $=$ _____

3. $5 \times 48 =$ _____ $=$ _____

4. $32 \times 500 =$ _____ $=$ _____

5. $18 \times 50 =$ _____ $=$ _____

6. $282 \times 3\,000 =$ _____ $=$ _____

Activity 3

Use doubling and halving to calculate.

1. $8 \times 24 =$ _____

2. $16 \times 24 =$ _____

3. $32 \times 24 =$ _____

4. $4 \times 16 =$ _____

5. $4 \times 160 =$ _____

6. $8 \times 160 =$ _____

7. $12 \times 7 =$ _____

8. $6 \times 7 =$ _____

9. $6 \times 14 =$ _____

10. $9 \times 6 =$ _____

11. $18 \times 12 =$ _____

12. $36 \times 24 =$ _____

Extension

True or false? If you double a number the answer will always be even, but if you halve a number the answer can be odd. Give a reason for your answer.

_____

_____

Multiplication strategies (1)

Use the *Splitting to multiply* widget in *Multiply whole numbers*.

Activity 1

Calculate.

1. 30×60 = _____
2. 50×30 = _____
3. 400×60 = _____
4. 70×800 = _____
5. 80×90 = _____
6. 20×110 = _____
7. 400×500 = _____
8. 100×100 = _____
9. 40×120 = _____

Activity 2

Multiply by breaking down the numbers. The first one has been done as an example. Use a calculator to check your answers.

1. 30×53 = $30 \times 50 + 30 \times 3$
   = $1500 + 90$
   = 1590
2. 16×60 = _____
   = _____
   = _____
3. 232×16 = _____
   = _____
   = _____
4. 40×133 = _____
   = _____
   = _____
5. 23×99 = _____
   = _____
   = _____
6. 85×191 = _____
   = _____
   = _____

Activity 3

Solve. Show your working.

1. Race organisers work out that 2 196 runners need 12 water sachets each. How many water sachets is this in total? _____
2. Nina runs 65 km every week for 18 weeks to train for a race. How far will she run in total? _____
3. There are 593 running clubs in South Africa. Each club is allowed to enter 24 runners per race. How many runners will enter in total if each club enters the maximum runners allowed? _____
4. There are 56 food stalls at a race expo. If each stall sells 121 meals each day, how many meals will they sell in 5 days? _____

Worksheet 10 Whole numbers

Multiplication strategies (2)

Activity 1

Nancy multiplies like this.

46×12
$= 46 \times 10 + 46 \times 2$
$= 460 + 92 = 552$

Use Nancy's method to calculate.

1. 25×11

2. 32×28

3. 165×19

4. 128×22

5. 140×14

6. 36×48

Activity 2

Nomsa uses factors to multiply.

$45 \times 24 = 9 \times 5 \times 3 \times 8$
$= 9 \times 5 \times 3 \times 8$
$= 40 \times 27$
$= 1080$

Reminder

The factors of 45 are 5 and 9.

The factors of 24 are 3 and 8, 12 and 2 and 6 and 4.

You can use any of the factor pairs.

Calculate using factors.

1. 42×12

2. 32×16

3. 516×56

4. 54×116

5. 40×74

6. 36×48