Mental maths (multiplication)

Activity 1

Answer within five minutes. Do not use a calculator.

1. Multiply 90 × 40. _____
2. Divide 14 000 ÷ 70. _____
3. Divide 25 000 kg ÷ 5. _____
4. Mrs Abrahams budgets R4 500 for her grandson's lunches for the year. How many R50 lunches can he buy? _____
5. Find the volume of a cube that has side lengths of 3 cm. _____
6. A square has an area of 36 square units. What is the perimeter? _____
7. What is 42 cm × 1 000? _____
8. What is 5,4 × 10? _____
9. Solve 14 × 25. _____
10. Find 75% of 4. _____
11. Calculate 600 ÷ 20. _____
12. What is 699 ÷ 3? _____
13. Express in digits: three hundred thirty million, forty-nine thousand and eleven. _____
14. Write the first five perfect squares. _____
15. Calculate 6 000 × 900. _____
16. What is Tim's salary if he earns R901 per week for 16 weeks? _____
17. How many cm are in 4 km? _____
18. How many ml are there in a 4-ℓ jug of milk? _____
19. A builder pays 15 artisans R45 165 for building a house. How much will each builder receive? _____
20. Calculate 1,25 × 25. _____

Worksheet 2 Whole numbers

Properties of whole numbers

Activity 1

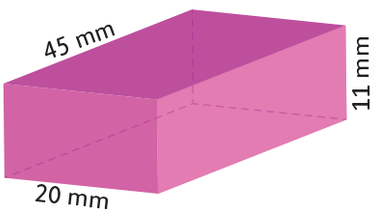
1. Use the commutative property of addition and multiplication to write each statement in a different way.

a) $a^2 + b^2 = c^2$ _____

b) $d = 2r$ _____

c) $\frac{2}{3} \times \frac{6}{7}$ _____

2. Use the associative property to easily calculate the volume of this cuboid.



_____

3. Use the associative property and find a way to easily calculate 42 + 17 + 85 + 4 + 3 + 18.

_____

4. True or false? Give a reason for your answer.

24 – 32 + 68 – 26 150 = 24 – 26 150 – 32 + 68

TRUE / FALSE _____

Activity 2

1. Insert brackets in the correct places to make each expression true.

a) 6 – 4 × 4 + 5 = 13

b) 7 + 2 × 3 + 1 = 15

c) 17 – 8 ÷ 3 + 1 = 4

d) 3 + 4 × 7 – 5 = 14

e) 21 + 90 – 18 ÷ 36 = 23

f) 27 – 6 + 3 ÷ 24 = 1

2. Use the correct order of operations to solve.

a) $5 + 2 \times (4 + 7) \times 3$ = _____

b) $9 \times 7 + 5 \times (3 + 4)$ = _____

c) $(10 \times 2 + 3) \times 4 + 8$ = _____

d) $(9 - 4 + 10 \times 8) \div 5$ = _____

e) $(9 + 5 - 6) \times (64 \div 8)$ = _____

f) $(5 \times 3 + 9) \div (16 - 10)$ = _____

g) $(6 + 4 - 10) \div (3 \times (9 + 7))$ = _____

h) $(9 \div 3) \times (6 + 8 - 5 - 4)$ = _____

3. Is $2x + 8 - 9$ the same as $(2x + 8) - 9$? Give a reason for your answer.

_____

Activity 3

Calculate.

1. 15×0 = _____

2. 1×63 = _____

3. $0 \div 25$ = _____

4. 1×1 = _____

5. $1 + 1$ = _____

6. $1 \div 1$ = _____

7. $20 \div 0$ = _____

8. 0×18 = _____

9. $13\,475 \div 1$ = _____

10. $475 \div 475$ = _____

Worksheet 3 Whole numbers

Calculation techniques

Activity 1

1. Calculate.

a) 6 000 × 30 = _____

b) 27 000 ÷ 90 = _____

c) 95 000 ÷ 5 000 = _____

2. Use rounding and compensating to calculate. Use a calculator to check your answers.

a) 464 + 88 = _____ **b)** 367 + 247 = _____ **c)** 194 – 51 = _____

d) 677 – 58 = _____ **e)** 1 896 + 655 = _____ **f)** 4 561 – 345 = _____

3. Use doubling to calculate.

a) 60 × 66 = _____ **b)** 15 × 44 = _____ **c)** 23 × 22 = _____

d) 128 × 40 = _____ **e)** 960 × 20 = _____ **f)** 252 × 80 = _____

4. Calculate. Use a calculator to check your answer.

a) 33 × 57 = _____ **b)** 2 356 + 67 554 + 34 555 = _____

c) 56 185 – 23 498 = _____ **d)** 5 063 ÷ 61 = _____

Activity 2

Estimate the answer. Then use a calculator to calculate the answer.

		Estimate	Answer
1.	98 361 – 56 841		
2.	696 × 33		
3.	485 362 + 856 251		
4.	528 ÷ 48		

Activity 3

Use a calculator to solve.

1. 15 × 20 – 3 × 34 = _____

2. 74 × 26 + 96 ÷ 32 + 49 × 32 = _____

3. 1 792 ÷ 32 – 50 + 12 = _____

4. 34(65 822 – 64 912) – 28 648 = _____

Prime numbers and prime factorising

Activity 1

Sort these numbers into prime numbers and composite numbers:

9 17 21 33 43 63 81 99 105 137 211 350

Prime numbers	Composite numbers

Activity 2

Use the cards to make as many one-, two- and three-digit prime numbers as possible.

Activity 3

Write each number as the product of prime numbers.

1. 56 _____
2. 330 _____
3. 175 _____
4. 486 _____

The largest prime number is 24 million digits long and was discovered in 2018.

Activity 4

Say whether each statement is true or false. If false, give the correct answer.

1. All odd numbers are prime numbers. TRUE / FALSE

_____

2. All multiples of 5 are prime numbers. TRUE / FALSE

_____

3. Numbers that are not prime are composite numbers. TRUE / FALSE

_____

4. All numbers can be written as the sum of two prime numbers. TRUE / FALSE

_____

5. All composite numbers can be written as the product of prime numbers. TRUE / FALSE

_____

6. The multiples of prime numbers are also prime numbers. TRUE / FALSE

_____

Worksheet 5 Whole numbers

Multiples and factors

Use the *Finding the highest common factor* widget in *HCF Review*.

Activity 1

1. List all the factors of 42. _____
2. What are the first three multiples of 42? _____
3. Write 42 as the product of its prime factors. _____
4. Write 42 as the sum of two prime numbers. _____
5. What number should be added to 42 to get the next prime number? _____

Activity 2

1. Use prime factors to find the LCM of the following.

   a) 52 and 78

   _____

   _____

   _____

   b) 8, 12 and 20

   _____

   _____

   _____

2. Find the HCF of the following.

   a) 72 and 120

   _____

   _____

   _____

   b) 90 and 162

   _____

   _____

   _____

Activity 3

Solve. Show your working.

1. Justin and Dominique do interval runs. Justin does an interval run every 2 minutes, and Dominique does one every 3 minutes. If they started their runs at 9:00 a.m., when will they next start an interval run at the same time? _____
2. A taxi and a bus both stop at the terminus at 12:00. The taxi stops there every 20 minutes and the bus every 8 minutes. When will they next stop at the terminus at the same time? _____
3. There are two blocks of cheese. One is 35 cm long and the other is 27 cm long. Derek wants to cut both blocks of cheese into equal slices to sell at the market. What is the largest size that he can cut the slices? _____

Ratio (1)

Activity 1

1. Solve.

a) Increase 150 in the ratio 5 : 6. _____

b) Increase 120 in the ratio 3 : 4. _____

c) Decrease 24 in the ratio 3 : 2. _____

d) Increase 45 in the ratio 5 : 9. _____

e) Decrease R5 250 in the ratio of 7 : 5. _____

2. When Jack turned 18 he weighed 78 kg. On his 21st birthday, his weight had increased in a ratio 2 : 3. What was his weight on his 21st birthday? _____

3. A store has a 3-for-2 sale on books. Ayla buys 20 books. How many books did she get for free? _____

Activity 2

Solve. Show your working.

1. Divide R560 between Susan, Megan and Melanie in the ratio 2 : 5 : 1. _____

2. Thabo is 10 years old and has twin sisters. His grandma asks him to divide R450 among them in the same ratio as their ages. If each sister gets R100, how old are his sisters? _____

3. It takes Julia 45 minutes to drive 60 km. How far can she drive in one hour if she drives at a constant speed? _____

4. Three painters take 5 days to paint a house. How long would it take 7 painters to paint the same house? _____

Worksheet 7 Whole numbers

Ratio (2)

Activity 1

1. Dale Steyn took 192 wickets in one-day internationals and 58 wickets in T20 games. What is the ratio of the wickets in simplest form?

_____

2. To make cool drink, Danny uses 450 ml of water and 75 ml of concentrate. What is the ratio of water to concentrate in simplest form?

_____

3. Joan is on her cell phone for 135 minutes and does homework for 45 minutes. What is the ratio of the time she spends doing homework and the time she spends on her phone?

_____

4. Simplify these ratios.

a) 2 : 3 _____ **b)** R2,50 : R1,75 _____

c) 1 h : 45 min _____ **d)** 12 : 28 : 60 _____

e) $2\frac{1}{5} : \frac{4}{15}$ _____ **f)** 3,5 : 17,5 _____

Activity 2

Janet makes a smoothie every morning using the ingredients below. The recipe is enough to make 450 ml.

- 1,5 cups water
- 1 cup frozen berries
- 3 ice cubes
- 2 tablespoons protein powder
- 2 tablespoons nuts
- 2 teaspoons honey
- 1 banana

Write the quantities she will need if she wants to make:

1. two smoothies

_____
_____
_____
_____
_____
_____
_____

2. five smoothies

_____
_____
_____
_____
_____
_____
_____

3. enough for one week

_____
_____
_____
_____
_____
_____
_____

Activity 3

Solve. Show your working.

1. Divide 880 g food between two dogs in the ratio 5 : 6. _____

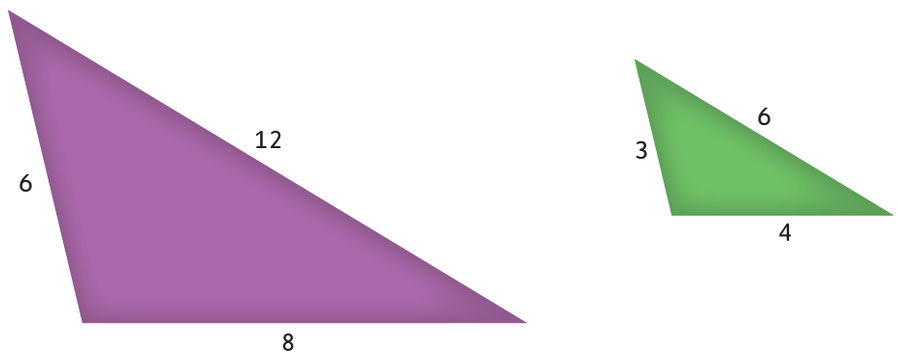
2. A cupcake recipe uses flour, sugar and butter in the ratio of 3: 1: 2. If the baker only has 500 g of sugar, how much flour and butter must he use? _____

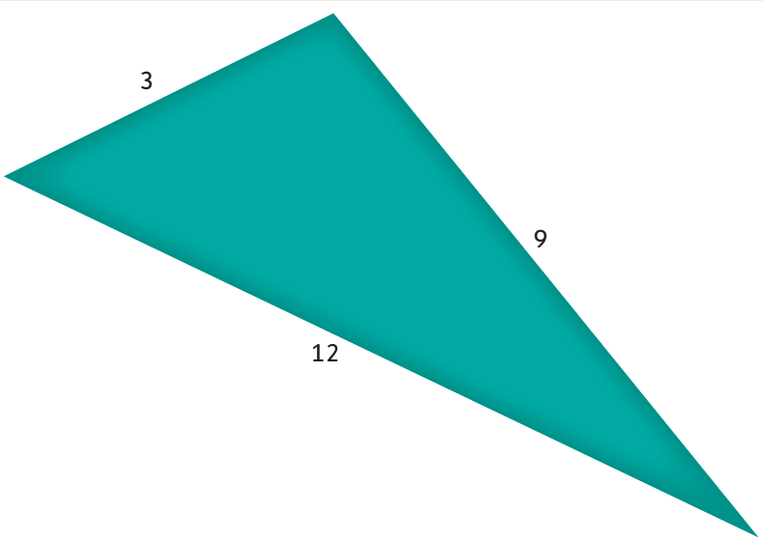
3. A 2-ℓ bottle of washing liquid was made up in a ratio of 1 : 4. How much concentrate was used? _____

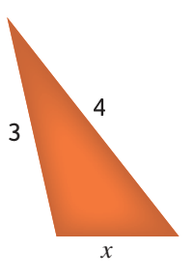
Problem solving

We say that two triangles are in similar if their sides are in proportion. Study the example and then solve for x.

Example







_____

Worksheet 8 Financial mathematics

Profit, loss and discount

Activity 1

Darcy opened a specialist sports shop called Dart that sells sportswear, trainers and nutritional products for athletes.

1. Darcy marks up her stock by 45%. Complete the table by calculating the mark-up amount and the selling price of each item.

	Cost price	Mark-up amount	Selling price
Golf shirt	R250		
Running vest	R180		
Blue trainers	R960		

2. Calculate the price of the blue trainers after 25% discount off the selling price. _____

3. Will the blue trainers be selling at a profit or a loss? Substantiate your answer with calculations. _____

4. A customer bought all three items. How much did they pay after the discounts on the posters were taken into account? _____

5. Wandile buys trainers that are reduced from R780 to R655,20. What percentage discount did Wandile receive? _____

6. At the end of the season, Darcy sells the following items at the given prices. Complete the table by filling in the loss or profit amount and the percentage.

	Cost price	Selling price	Profit/loss amount	% profit/loss
Golf clubs	R8 500	R699		
Tennis racquet	R1 500			18% loss
Running shorts		R380	–R150	
Cap	R180			25% profit
Sunglasses		R3 230		15% loss