



Mathematics 2 – Grade 7

Welcome to your Conquesta Olympiad. When you have decided which of the answers is correct, scratch out the letter in the matching square on your answer sheet. Example:- If the answer to question 4 is c, then scratch out the letter c in the square containing c next to the number 4 (see example 1 below). If you've made a mistake and b should have been the answer, neatly cross out the mistake and then scratch out b (see example 2 below).

Example 1:-

4.	a	b	c	d
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Example 2:-

4.	a	b	c	d
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<p>Useful tip:- When you have number sentences using different operations, apply the rule of BODMAS, which is the order of operations:- Firstly, calculate whatever is in Brackets, then Other (of, square roots, power of, etc.), then Division and Multiplication (from left to right as they rank equally), and lastly, Addition and Subtraction (also from left to right).</p> <p>Did you know?</p> <ul style="list-style-type: none"> • Factors are numbers we can multiply together to get another number. A factor is a number that divides exactly into another whole number, e.g., the factors of 12 are 1, 12, 2, 6, 3, 4 because they all divide exactly into 12. • A multiple is the result of multiplying a number by an integer (not a fraction). $6 \times 2 = 12$, so 12 is a multiple of 6 and a multiple of 2. • A Prime number has only 2 factors (1 and itself) and can only be divided by 1 and itself. E.g., 7 is a prime number because it only has 2 factors; 1 and 7. 1 is not a prime number as it only has 1 factor. 0 is not as it is not divisible by itself. • A Palindromic number remains the same when the digits are reversed. • An Interior Angle is an angle inside a shape. All the Interior angles of any triangle add up to 180°. The General Rule on Interior Angles is that each time we add a side (triangle to quadrilateral, quadrilateral to pentagon, and so on), we add another 180° to the total. • 8^4 means 8 to the power of 4, or 8 multiplied by itself 4 times. E.g., $8^4 = 8 \times 8 \times 8 \times 8 = 4096$. (Exponents are also called powers or indices.) In the above case the exponent is 4, and 8 is the base. If the exponent is 1, then the number remains the same e.g., $8^1 = 8$. If the exponent is 0, then you get 1, e.g., $8^0 = 1$. • Square numbers are numbers multiplied by themselves, e.g., $4 \times 4 = 16$, also written as '4 to the power of 2', '4 to the second power' or simply '4 squared'. E.g., $4^2 = 16$. So, 4 squared is 16. The square root of 16 = 4. The little 2 is called an exponent. The square root symbol is $\sqrt{\quad}$. 	<p>1. Which number must replace the star?</p> <p style="text-align: center;">$10\ 000 \div 20 = \star$</p> <p>(a) 5 000 (b) 50 000 (c) 500 (d) 50</p>																																																								
<p>Number values</p> <ul style="list-style-type: none"> • By splitting each number into clusters of 3, you can find the number easily. For example, 65432 can be easily read when written this way: 65 432. • Remember that each digit in a number is important and has its own value (worth). See example below. <table style="margin-left: auto; margin-right: auto; text-align: center;"> <tr> <td>millions</td><td>ten thousands</td><td>hundreds</td><td>units</td></tr> <tr> <td>3</td><td>1</td><td>4</td><td>7</td></tr> <tr> <td></td><td>hundred thousands</td><td>thousands</td><td>tens</td></tr> <tr> <td></td><td>2</td><td>8</td><td>6</td></tr> </table> <p>In the above number, the digit 1 is bigger than the digit 8. This is because the digit 1 is actually worth 100 000 and the digit 8 is worth just 80. You need to learn the place value of numbers so that you can put the digits in their correct places. Look at the chart below, which includes decimal fractions. When adding or subtracting with decimal numbers, always have the decimal points above one another.</p>	millions	ten thousands	hundreds	units	3	1	4	7		hundred thousands	thousands	tens		2	8	6	<p>2. A quick solution for $371 \times 47 + 371 \times 53$ is: (Remember the BODMAS rule.)</p> <p>(a) 371×100 (b) $371 \times 40 + 7 + 371 \times 50 + 3$ (c) $371 \times 90 + 10$ (d) 371×10^2</p>																																								
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<p>Scale of Place Values</p> <table style="width: 100%; text-align: center;"> <tr> <td colspan="4">Whole number</td> <td colspan="4">Decimal fraction (number)</td> </tr> <tr> <td>5</td><td>9</td><td>5</td><td>8</td> <td>5</td><td>9</td><td>5</td><td>8</td> </tr> <tr> <td>Thousands</td><td>Hundreds</td><td>Tens</td><td>Units</td> <td>tenths</td><td>hundredths</td><td>thousandths</td><td></td> </tr> <tr> <td>5 000</td><td>900</td><td>50</td><td>8 or 5</td> <td>0,9</td><td>0,05</td><td>0,008</td><td></td> </tr> <tr> <td></td><td></td><td></td><td></td> <td>or $\frac{9}{10}$</td><td>or $\frac{5}{100}$</td><td>or $\frac{8}{1\ 000}$</td><td></td> </tr> <tr> <td colspan="4">Bigger</td> <td colspan="4">Smaller</td> </tr> <tr> <td colspan="4">← whole numbers</td> <td colspan="4">decimal fractions →</td> </tr> </table>	Whole number				Decimal fraction (number)				5	9	5	8	5	9	5	8	Thousands	Hundreds	Tens	Units	tenths	hundredths	thousandths		5 000	900	50	8 or 5	0,9	0,05	0,008						or $\frac{9}{10}$	or $\frac{5}{100}$	or $\frac{8}{1\ 000}$		Bigger				Smaller				← whole numbers				decimal fractions →				<p>In the diagram below, the product of the two numbers in the circles gives the number that must be written in the square that lies between them.</p> <p>3. What must be written in place of the x and y?</p> <p>(a) 8 and 5 (b) 18 and 15 (c) 24 and 18 (d) 24 and 15</p>
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<p>4. What fraction of the square is shaded?</p> <p>(a) $\frac{1}{6}$ (b) $\frac{1}{8}$ (c) $\frac{1}{4}$ (d) $\frac{3}{8}$</p>	<p>5. How many whole numbers between 0 and 120 are square numbers?</p> <p>(a) 11 (b) 10 (c) 7 (d) 6</p>																																																								
<p>6. What is the 9th prime number?</p> <p>(a) 19 (b) 23 (c) 21 (d) 17</p>																																																									

Julia worked out that her average reading speed was 30 words per 10 seconds.

7. How long would it take her to read a chapter containing 14 400 words?

- (a) 12 minutes.
- (b) 1 hour 20 minutes.
- (c) 2 hours.
- (d) 20 minutes.

8. What number is half of a quarter of 32?

- (a) 8
- (b) 2
- (c) 4
- (d) 6

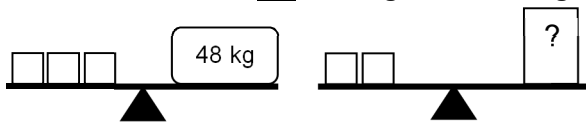
Look at the number below.

15 268

9. Calculate the difference between the value of the 2 and the value of the 8.

- (a) 192
- (b) 6
- (c) 208
- (d) 162

10. How much does the all rectangular box weigh?



- (a) 8 kg
- (b) 24 kg
- (c) 16 kg
- (d) 32 kg

Every week Sahil saves R6 of his pocket money, while Tammy is able to save one and a half times more money per week, than Sahil.

11. How much more money had Tammy saved than Sahil, after one year?

- (a) R312
- (b) R468
- (c) R156
- (d) R78

Thobani's piggy-bank contains R1, R2 and R5 coins. He has the exact same number of each of the coins.



12. If he has saved R240, how many of each of the coins does he have?

- (a) 40
- (b) 30
- (c) 10
- (d) 20

I am a four digit number. My digits are consecutive, and the sum of my digits is 26.

13. The value of my highest digit is ...

- (a) 8
- (b) 9
- (c) 7
- (d) 6

14. Replace the ★ and the ■ with an operational sign (+ , - , × or ÷) to make the equations true.

9 ★ 5 = □



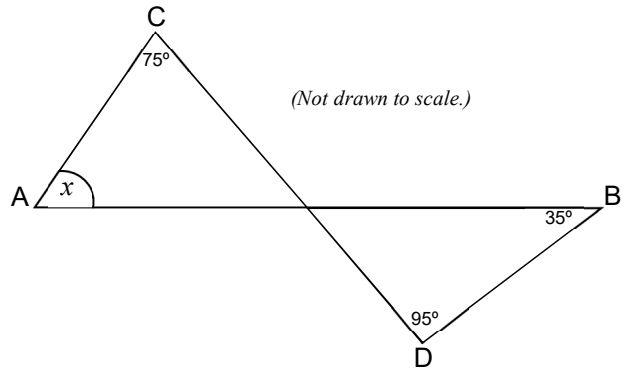
12 ÷ 4 = $\frac{\square}{12}$

- (a) - and ×
- (b) + and ÷
- (c) × and +
- (d) - and +

Did you know?

- All the angles in every type of triangle add up to 180°.
- Equilateral triangles have 3 equal sides and 3 equal angles (60°).
- Isosceles triangles have 2 equal sides and 2 equal angles.
- Scalene triangles have 0 equal sides and 0 equal angles. The angles can be either acute, right or obtuse.
- Complimentary angles are when 2 angles add up to 90°.
- Supplementary angles are when 2 angles add up to 180°.

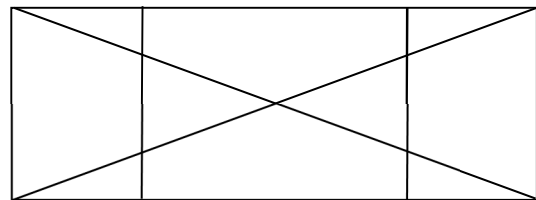
AB and CD are straight lines.



15. What is the size of the angle at x?

- (a) 50°
- (b) 35°
- (c) 130°
- (d) 55°

16. How many triangles in the diagram below?



- (a) 8
- (b) 10
- (c) 14
- (d) 12

George works weekdays as a driver for a delivery company. He earns a basic wage of R1 500 for the week, plus an additional R20 for each delivery.

17. On Monday he made 12 deliveries. How much did he earn on Monday?

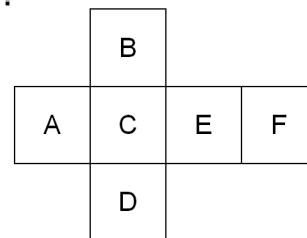
- (a) R1 700
- (b) R3 600
- (c) R540
- (d) R240

18. What is the correct solution for the following equation? (Remember the BODMAS rule.)

$\frac{1}{6}$ of $72 - 10 + 5^2 \times 2 = \dots? \dots$

- (a) 0
- (b) 100
- (c) 150
- (d) 50

19. When folded, which side of this net will be opposite F?



- (a) A
- (b) D
- (c) B
- (d) C

A farmer had a number of fruit trees in his orchard. When he counted them in 2s, he had 1 left over. When he counted them in 5s he had 4 left over. But when he counted in 7s he had none left over.

20. What is the least number of trees in his orchard?

- (a) 77
- (b) 73
- (c) 49
- (d) 54



21. What is the smallest number that must be subtracted from 270 604 to make it divisible by 9?

- (a) 1
- (b) 7
- (c) 2
- (d) 8