

Year 7 Term 1 Homework

Student Name: _____	Grade: _____
Date: _____	Score: _____

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This edition was printed on January 13, 2012.

Camera ready copy was prepared with the **L^AT_EX₂ ϵ** typesetting system.

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3 Year 7 Term 1 Week 3 Homework

3.1 Beginnings in Number

3.1.1 Grouping Symbols

Grouping symbols are used to indicate the order in which several operations are to be performed. The most commonly used grouping symbols are:

parentheses () , brackets [] , braces { }

Note that the fraction bar (vinculum) acts in the same way as a set of grouping symbols, but indicates as division.

Example 3.1.1

$$\begin{aligned} 1. \quad & 3 \times [48 \div 12 - (16 - 4)] \\ & = 3 \times [4 - 12] \\ & = 3 \times (-8) \\ & = -24 \end{aligned}$$

$$\begin{aligned} 2. \quad & \frac{12 \times (9 - 3)}{10 + 6 - 8} \\ & = \frac{12 \times 6}{8} \\ & = \frac{72}{8} \\ & = 9 \end{aligned}$$

$$\begin{aligned} 3. \quad & \frac{[3 \times (16 \div 4)]}{40 - (23 - 13)} \\ & = \frac{[3 \times 4]}{40 - 10} \\ & = \frac{12}{30} \\ & = \frac{2}{5} \end{aligned}$$

Exercise 3.1.1 Evaluate the following expressions:

$$1. \quad 96 \div [12 + 2(2 + 4)] + 8 = \underline{\hspace{15em}}$$

$$2. \quad \frac{[3 + 5(6 \div 2)]}{[6 \times (4 + 5)]} = \underline{\hspace{15em}}$$

$$3. \quad \frac{6 \times 13 + 7 \times 6}{9 \times 6 - 8 \times 6} = \underline{\hspace{15em}}$$

Exercise 3.1.2 Insert grouping symbols in each of the following to make a true statement.

1. $42 \div 2 \times 3 = 7$

2. $8 + 5 - 3 + 6 = 4$

3. $49 \div 7 - 4 \times 3 = 9$

4. $31 - 35 \div 7 + 8 = 18$

5. $50 - 7 \times 3 - 5 + 4 = 20$

Exercise 3.1.3 Express each of these in the form of $\square \times \triangle$; then evaluate them.

1. $14 \times 12 - 8 \times 14$

2. $18 \times 11 - 11 \times 13$

3. $12 \times 7 + 6 \times 7$

4. $16 \times 25 - 6 \times 25$

5. $\frac{12 \times 4 - 4 \times 7}{8 \times 4}$

Exercise 3.1.4 Evaluate each of the following factorials.

1. $12 \times 5! =$ _____

2. $\frac{12!}{10!} =$ _____

3. $\frac{8!}{6! \times 5!} =$ _____

Exercise 3.1.5 Write each of the following statements using numbers and mathematical operations and then solve them.

1. *Three times the sum of a number and two times the number is 45. Find the number.*

2. *If the product of eight and a number is increased by 4 the result is 100. Find the number.*

3. *Five times a number equals 10 less than seven times the number. What is the number?*

4. *Ten times the difference of 5 minus a number is 20. What is the number?*

5. *Three more than five times a number is equal to the number increased by 51. What is the number?*

6. *Nine more than twice a number is equal to the number increased by 21. What is the number?*

7. *Three times the sum of a number and eight times the number is 162. Find the number.*

8. *If the product of six and a number is increased by 2, the result is 68. Find the number.*

3.1.2 Problem Solving

Exercise 3.1.6

1. *The total population of town A, town B and Town C is 72000. There are 8500 people in town A. The population of town B is three times the total population of town A and C. Find the difference in the population between town B and town C.*

2. *The total number of people in a music carnival is 1680. There are 446 women . The number of men is twice the total number of women and children combined. If the number of boys is half the number of girls, how many girls are there in the carnival?*

3. *Alice, Emma and George bought a present which cost \$48 for their mother. Alice paid \$7.45. Emma paid five times the total amount paid by Alice and George. How much money must Alice and George each give to Emma if they were to share the cost of the present equally?*

4. *The total number of cows, sheep and goats on a farm is 4500. There are 57 goats. The number of sheep on the farm is thrice the total number of cows and goats on the farm. How many more sheep than cows are there on the farm?*

3.2 Number Theory

3.2.1 Odd Numbers and Even Numbers

- All counting numbers are either odd or even
- A number is even if it is divisible by 2 (ends in 2, 4, 6, 8, or 0)
- A number is odd if it ends in 1, 3, 5, 7 or 9

Exercise 3.2.1 Complete the following statements:

1. The sum of two even numbers is always _____
2. The sum of two odd numbers is always _____
3. The sum of three even numbers is always _____
4. The sum of three odd numbers is always _____
5. The sum of any number of even numbers is always _____
6. The product of two even numbers is always _____
7. The product of three even numbers is always _____
8. The product of two odd numbers is always _____
9. The product of three odd numbers is always _____
10. The product of any number of even numbers is always _____

Exercise 3.2.2

1. What is the largest three-digit number? _____
2. What is the smallest three-digit number? _____
3. Write down the largest three-digit number in which no numerals is repeated. _____
4. Write down the smallest three-digit number in which no numeral is repeated. _____
5. Write down the largest three-digit even number in which no numeral is repeated. _____
6. Write down the smallest three-digit odd number in which no numeral is repeated. _____
7. Write down the smallest three-digit number divisible by 3. _____
8. Write down the largest three-digit number divisible by 5. _____

3.3 Diagnostic Test

Question 1 (16 marks)

Evaluate the following expressions:

(a) $[(8 \times 3) - (66 \div 22)] \div 2$ [4]

(a) _____

(b) $[8 \times 8 + (7 \times 9) - 25] \div 2$ [4]

(b) _____

(c) $3 \times 7^2 + 5 \times 4^3$ [4]

(c) _____

(d) $10^2 \div 5^2 + 4 \times 3^4 \times 10^2$ [4]

(d) _____

Question 2 (4 marks)

If a twenty metre log had to be cut into twenty equal pieces, how long would it take if it took $2\frac{1}{2}$ minutes to make each cut?

2. _____

Question 3 (4 marks)

Five times the difference of 8 minus a number is 25 What is the number?

3. _____

Question 4 (3 marks)

Five times a number equals 28 less than nine times the number. What is the number?

4. _____

Question 5 (3 marks)

Write the smallest three-digit number divisible by both 3 and 5.

5. _____

Question 6 (4 marks)

Find the largest four-digit even number with a 4 in the thousands place and a 5 in the tens place.

6. _____

Question 7 (4 marks)

Find the smallest four-digit odd number with a 6 in the hundreds place and a 7 in the tens place.

7. _____

Question 8 (4 marks)

Find the difference between the largest four-digit number and the smallest three-digit number with no numeral is repeated.

8. _____

Question 9 (4 marks)

The product of any number of odd numbers is always [even \ odd]

9. _____

Question 10 (4 marks)

The product of two consecutive number is always [even \ odd]

10. _____

Question 11 (10 marks)

The population of town A is 10000 more than town B. If 3200 people move from town B to town A, the population in town A will be 6 times that of town B. Find the total population of the two towns at first.

Question 12 (10 marks)

A man purchased 5 tyres for his car. He know that he will travel 25,000 km. If he wishes to use the tyres equally, how many kilometres will each tyre travel?

Question 13 (10 marks)

A slow clock loses 10 minutes every hour. If it is 12 noon on Monday, When will it show the correct time again?

Question 14 (10 marks)

Adam had a total of 640 blue and red marbles. After he bought 170 more blue marbles, he had 5 times as many blue marbles as red ones. How many more blue marbles than red ones did Adam have at first?

Question 15 (10 marks)

There are 3 sacks of potatoes. The first and second sacks together weigh 35 kg; the second and the third sacks together weigh 45 kg, and the first and third together weigh 40 kg. How much does each sack weigh?
