Carlingford High School

Mathematics

Year 7 Term Two Examination

2019

Time allowed: 50 minutes

Name: Solutions **Class: 7**___

LW Integers
MV Fractions Q1-10
MB Fractions Q11-15 + PS

Instructions:

- Use blue or black pen
- No calculators allowed
- Show all necessary working out in the space provided
- Marks may be deducted for untidy work
- All questions are worth one mark unless otherwise stated

Topic	Integers	Fractions	Problem Solving	Total	
Mark	/32	/34	/2	/68	%

Integers (32 marks)

1 What is the opposite of 'deposit'?

withdraw or take out

2 $-3 < -23$, true or false?

false

3 Rewrite in ascending order:

$3, -7, -4, -29$

$-29, -7, -4, 3$

4 Evaluate each expression.

a) $-3 + 5 =$ 2

b) $-7 + (-4) =$ -11

c) $2 - 9 =$ -7

d) $-6 - (-4) =$ -2

e) $-5 + (-7) - 3 =$ $-12 - 3$ 2
$= -15$

5 Write an expression which means 'the sum of negative five and the quotient of forty-four and eleven'

$-5 + \frac{44}{11}$

6 Simplify fully.

a) $-5 \times 3 =$ -15

b) $-6 \times (-2) =$ 12

c) $-7 \div 7 =$ -1

d) $32 \div -4 =$ -8

e) $-24 \div (-3) \times (-2) =$ 8×-2 2
$= -16$

7 Evaluate each expression.

a) $4 + 3 \times (-3) =$ $4 - 9$ 2
$= -5$

b) $(12 - 24) \div (-2)^2 =$ $-12 \div 4$ 2
$= -3$

c) $10 - 12 \div 4 - 7 =$ $10 - 3 - 7$ 2
$= 0$

d) $\frac{3-48}{1-10} =$ $\frac{-45}{-9}$ 2
$= 5$

8 Find three different integers that have a positive product and a sum of -11. **2**

$-10, -3, 2$, (others possible)

1 mark for negative product but correct sum

9 a) Find the distance between the numbers -7 and 3 on a number line.

10

b) Which number is half way between -7 and 3 on a number line?

-2

10 The lowest point in Australia is the bottom of Lake Eyre, 15 m below sea level. The highest point in Australia is the top of Mount Kosciuszko, 2228 metres above sea level.

How much higher is the top of Mount Kosciuszko than the bottom of Lake Eyre? **2**

$2228 - (-15) = 2243$ m ✓ ✓

Mt Kosciuszko is 2243m higher

11 A seagull dives into the sea from a height of 580 cm above the water travelling at a speed of 140 cm per second. How far will it be below the surface after 6 seconds? **2**

$580 - 140 \times 6$

$= 580 - 840$

$= -260$

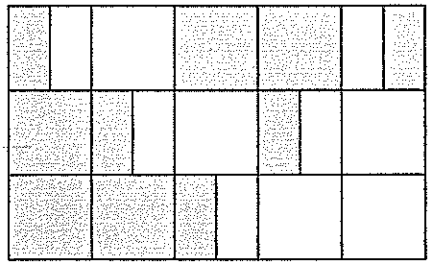
The gull is 260 cm below the surface.

Fractions (34 marks) – Simplify your answers fully where appropriate.

1 What fraction of the shapes are stars?

$\frac{4}{7}$

2 What fraction of the figure is shaded?



$\frac{15}{30} = \frac{1}{2}$

3 Simplify $\frac{180}{450}$ fully.

$\frac{18}{45} = \frac{2}{5}$

4 Complete the equivalent fractions.

a) $\frac{3}{10} = \frac{15}{50}$

b) $\frac{8}{9} = \frac{56}{63}$

5 Convert $\frac{23}{10}$ to a mixed numeral.

$2\frac{3}{10}$

6 Convert $2\frac{5}{6}$ to an improper fraction.

$\frac{12+5}{6} = \frac{17}{6}$

7 Complete with the symbol <, >, or =.

$\frac{44}{99}$ $\frac{4}{9} < \frac{5}{11}$ $\frac{45}{99}$

8 Evaluate, simplifying fully.

a) $\frac{2}{7} + \frac{3}{7} = \frac{5}{7}$

b) $\frac{4}{5} - \frac{1}{10} = \frac{8}{10} - \frac{1}{10}$

$= \frac{7}{10}$

c) $1\frac{3}{8} - \frac{5}{8} = \frac{11}{8} - \frac{5}{8}$

$= \frac{6}{8} = \frac{3}{4}$

d) $\frac{1}{4} + \frac{2}{3} = \frac{3}{12} + \frac{8}{12}$ **2**

$= \frac{11}{12}$

e) $2\frac{3}{4} + 1\frac{3}{5} = 3 + \frac{15}{20} + \frac{12}{20}$ **2**

$= 4\frac{7}{20}$

f) $4\frac{1}{6} - 3\frac{3}{8} = \frac{7}{6} - \frac{3}{8}$ **2**

$= \frac{28}{24} - \frac{9}{24}$

$= \frac{19}{24}$

9 Two sevenths of twenty one is 6.

10 Complete the sentence.

When a number is multiplied by a proper fraction the number is decreased.

11 Evaluate the products.

a) $\frac{2}{3} \times \frac{1}{4} = \frac{2}{12} = \frac{1}{6}$

b) $12 \times \frac{2}{29} = \frac{24}{29}$

c) $\frac{5}{9} \times \frac{3}{5} = \frac{1}{3}$

d) $\frac{2}{5} \times 2\frac{2}{3} = \frac{2}{5} \times \frac{8}{3}$ **2**

$= \frac{16}{15}$

$= 1\frac{1}{15}$

12 Find the **reciprocal** of each number.

a) $\frac{2}{3}$ $\frac{3}{2}$

b) 5 $\frac{1}{5}$

13 How many times does $\frac{2}{3}$ go into 5?

$5 \times \frac{3}{2}$

$= 7.5$

14 Evaluate each quotient.

a) $\frac{2}{5} \div \frac{3}{4} = \frac{2}{5} \times \frac{4}{3}$ **2**

$= \frac{8}{15}$

b) $\frac{4}{9} \div \frac{2}{7} = \frac{4}{9} \times \frac{7}{2}$ **2**

$= \frac{14}{9} = 1\frac{5}{9}$

c) $2\frac{2}{3} \div 1\frac{1}{4} = \frac{8}{3} \times \frac{4}{5}$ **2**

$= \frac{32}{15}$

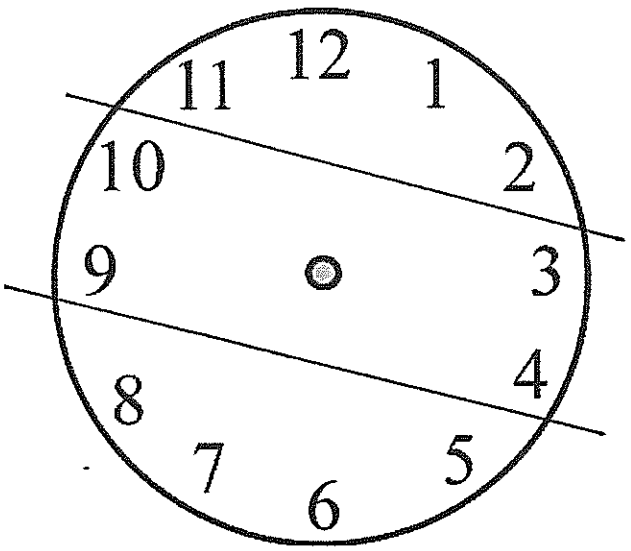
$= 2\frac{2}{15}$

15 What happens when you divide any number by its reciprocal?

The number is squared

Problem Solving (2 marks)

1 Divide the face of the clock into three parts with two straight lines so that the sum of the numbers in each of the three parts are equal.



2 A total of 657 digits were used in numbering the pages of a book. How many pages did the book contain?

Pages 1-9 9 digits

10-99 $2 \times 90 = 180$ digits

100-199 $3 \times 100 = 300$ digits

199 pages = 489 digits

$$\begin{array}{r} 657 \\ -\ 489 \\ \hline 168 \end{array}$$ digits left

$$3\overline{)168}$$ $= 56$

total pages $= 199 + 56$

$= 255$.

It contained 255 pages.

End of exam – please check your work