



# The City School

Unified Midyear Examinations 2018-19

SCHOOL  
NAME

INDEX  
NUMBER

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**MATHEMATICS**  
**CLASS 7**

**December 2018**  
**2 hours**

## READ THESE INSTRUCTIONS FIRST

- ❖ Write your index number and school/campus clearly in the spaces provided.
- ❖ Read and follow the instructions of the questions given.
- ❖ Answer **all** question in the spaces provided.
- ❖ Check your answer paper before you hand it in.
- ❖ Calculators are **not** allowed.
- ❖ Marks for each section are shown below.
- ❖ Do not use paper clips, highlighters, glue or correction fluid.

----- For Examiner's use only -----

|                | Section A: Computation (50) |    |    |    |    | Section B: Problem Solving (50) |    |    |    |    | Total |
|----------------|-----------------------------|----|----|----|----|---------------------------------|----|----|----|----|-------|
| Question #     | 1                           | 2  | 3  | 4  | 5  | 6                               | 7  | 8  | 9  | 10 |       |
| Max. Marks     | 10                          | 10 | 10 | 10 | 10 | 10                              | 10 | 10 | 10 | 10 | 100   |
| Marks Obtained |                             |    |    |    |    |                                 |    |    |    |    |       |

|            |  |       |  |
|------------|--|-------|--|
| Percentage |  | Grade |  |
|------------|--|-------|--|

Invigilated by: \_\_\_\_\_ Marked by: \_\_\_\_\_ Rechecked by: \_\_\_\_\_

## Q.1

a. Encircle the correct answer. Choose only one answer for each statement. [ /5]

i.  $12 : 24 : 16$  in simplest form is

- A.  $2 : 4 : 3$
- B.  $3 : 6 : 4$
- C.  $6 : 12 : 8$
- D.  $4 : 8 : 5$

ii.  $\frac{4}{10}$  can be expressed in percentage as

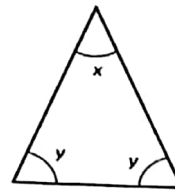
- A. 25%
- B. 40%
- C. 50%
- D. 4%

iii. 7999 rounded to the nearest tens = \_\_\_\_\_

- A. 79100
- B. 8000
- C. 8910
- D. 8999

iv. Expression for the vertical angle (x) of an isosceles triangle whose base angles are y is \_\_\_\_\_.

- A.  $x = 2y$
- B.  $x = 180 - y$
- C.  $x = 180 - 2y$
- D.  $x = 180 + 2y$

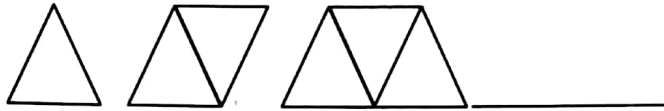


v. There are \_\_\_\_\_ even integers between -5 to 5.

- A. 4
- B. 6
- C. 8
- D. 5

b. Fill in the blanks. [ /5]

- i.  $\sqrt{7}$  is a(an) \_\_\_\_\_ number.
- ii. The  $\sqrt[3]{125}$  is \_\_\_\_\_.
- iii. The next 2 terms in 3, 6, 9, 12, 15, \_\_, \_\_.
- iv. In the equation of a straight line  $y = mx + b$ , 'm' is the \_\_\_\_\_ of the line.
- v. Draw the next shape of the given pattern.



Q.2

a. Identify which of the following are rational and which of them are irrational? [ /4]

8.123       $2\pi$        $\sqrt{9}$        $\frac{22}{7}$

| Rational Numbers | Irrational Numbers |
|------------------|--------------------|
|                  |                    |

b. Express 98 as a product of its prime factors. [ /2]

c. Find the smallest value of an integer k, such that  $98k$  is a perfect square. [ /2]

d. Evaluate  $[1 - (-1)]^5$ . [ /2]

**Q.3**

**a.** Work out the cost of the following books when 4 books cost Rs. 20.

[ /4]

**i.** 10 books

**ii.** 3 books

**b.** Express the ratio 1 hour 20 minutes : 40 minutes in its simplest form.

[ /3]

**c.** Find percentage change in an increase from 120 to 150.

[ /3]

**Q.4**

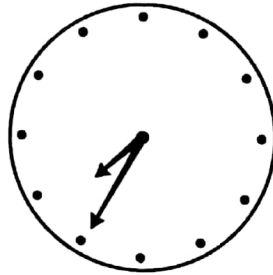
**a.** Local time in Singapore is 11 hours ahead of Trinidad.

**i.** Look at the two clocks in the answer space.

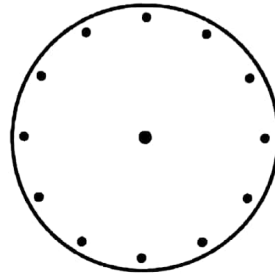
One shows the local time in Singapore.

Show the local time in Trinidad on the other clock.

[ /2]



Singapore



Trinidad

**ii.** At 9.15 a.m. in Trinidad, what will be the local time in Singapore?

Give answer using the 24 hour clock

Answer (ii).....[ /1]

**b.** Convert 50 m/s to km/hr.

[ /2]

**c.** Work out the value of  $6a - 2ab$  when  $a = -3$  and  $b = 4$

[ /3]

**d.** If one dozen eggs cost \$4, then what is the cost of 30 eggs?

[ /2]

**Q.5**

**a.** Convert the following into 24-hour clock notation [ /1]

i. 6:00 am

ii. 1:42 pm

**b.** Find percentage change a decrease from 400 to 320? [ /3]

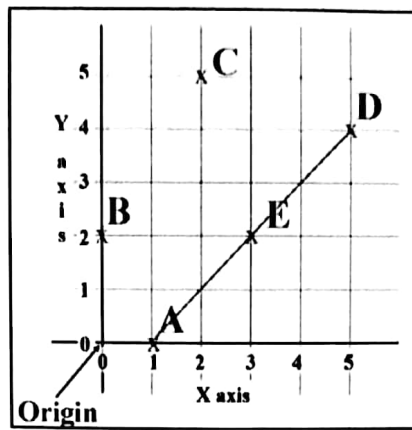
**c.** Find the gradient of each of the following linear functions. [ /2]

i.  $y = 8 - 2x$

ii.  $3y = 4x + 12$

**d.** Solve  $\frac{5}{p} = \frac{2}{3}$  [ /1]

e. Look at the given diagram and answer the following questions.



i. Draw the quadrilateral by joining the remaining points [ /1]

ii. What are the coordinates of the four vertices of the given shape?

..... [ /2]

## Q.6

- a. Drave drives at an average speed of 75 km/h over a distance of 250000 m. How long does he take for the whole journey in hours and minutes? [ /4]

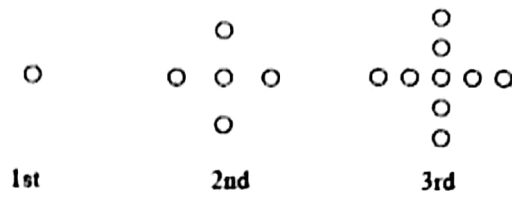
- b. Write the algebraic expressions for the following statement. [ /2]  
Subtract 4 from the sum of 2x and 5y

- c. Simplify the ratio: [ /2]  
500g : 1.5 kg

- d.  $y = a + bc$   
Find the value of y when  $a = -3$ ,  $b = 2$  and  $c = 8$  [ /2]



**Q.7** The diagram shows the first three patterns of circles in a sequence.



a. Draw the 4<sup>th</sup> pattern of circles. [ /2]

b. Complete the table below. [ /3]

|                    |                 |                 |                 |
|--------------------|-----------------|-----------------|-----------------|
| Pattern of circles | 1 <sup>st</sup> | 2 <sup>nd</sup> | 3 <sup>rd</sup> |
| Number of circles  | $1 = 4(1) - 3$  | $5 = 4(2) - 3$  |                 |

c. How many circles are there in the 6<sup>th</sup> pattern? [ /2]

d. Which pattern in the sequence contains a total of 197 circles? [ /3]

**Q.8**

[ /4]

**a.** Evaluate the following

$$\frac{1}{4} \div \left( 2\frac{1}{3} - \frac{5}{6} \right)$$

**b.** If  $\frac{r}{x+n} = p$ , find  $n$  when  $r = 9$ ,  $x = 2$  and  $p = 1\frac{4}{5}$ .

[ /3]

**c.** The rate of exchange between dollars and euros was \$0.8 to 1 euro.  
Calculate the number of euros received in exchange for \$300.

[ /3]

Q.9

a. Joanne sees this special offer in a shop.

[ ]/4]

| Special Offer                              |       |
|--|-------|
| iPod                                       | \$189 |
| Headphones                                 | \$25  |
| Buy both items and get 4% discount on each |       |

Joanne buys both items. How much does she pay?

b. During some recent roadwork, the width of an alley decreased by 10% to 27m. What was the original width of the alley? [ ]/4]

c. Convert  $7\frac{1}{2}$  hours in to \_\_\_\_\_ minutes [ ]/2]

**Q.10** Find the solution of these two simultaneous equations using graph use at least  
points for each equation.

[ /10]

$$y = x + 2 \text{ and } 3x + 2y = 9$$

