# The City School

**Unified Mid-Year Examinations**

**2018 – 2019**

**Class 9**

**SCHOOL NAME:**

**INDEX NUMBER:** | | | | | **DATE:**

**MATHEMATICS (SYLLABUS D)** **4024/12**

Paper 1 **1 hours 30 minutes**

Candidates answer on the Question Paper.

Additional materials: Geometrical Instruments

## READ THESE INSTRUCTIONS FIRST

Write your School name, Index number and Date in the spaces provided.
Write in dark blue or black pen.
You may use a pencil for any diagrams or graphs.
Do not use staples, paper clips, glue or correction fluid.

Answer all questions.

If working is needed for any question it must be shown in the space below that question.
Omission of essential working will result in loss of marks.

ELECTRONIC CALCULATORS MUST NOT BE USED IN THIS PAPER.
The number of marks is given in brackets [ ] at the end of each question or part question.
The total of the marks for this paper is 50.

Invigilated by: _____ Checked by: _____ Marks Tallied by: _____

This document consists of **11** printed pages and **1** blank page.

1. **(a)** Evaluate $\frac{2}{3} - \frac{3}{8}$

Answer (a)..... [1]

**(b)** Express 72% as a fraction in its lowest terms.

Answer (b)..... [1]

**(c)** A = h (4m +h)

Express m in terms of A and h.

Answer (c)..... [3]

**2.** Factories

**(a)** $x^2 + x - 12$

Answer (a)..... [1]

**(b)** $25x^2 - 4y^2$

Answer (b)..... [2]

**(c)** The cost of a mirror is directly proportional to the square of its width. A mirror of width 40 cm cost $ 24. Work out the cost of a mirror of width 60cm.

Answer (c)..... [3]

**3. (a)** Solve the equation $\frac{5x-1}{9} = \frac{9}{5x-1}$

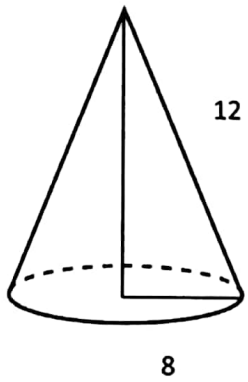
Answer (a)..... [3]

**(b)** $y$ is inversely proportional to $x$.

Given that $y$ = 250 when $x = 4$ find y when $x = 80$

Answer (b)..... [2]

**4. (a)** A cone has a base radius of 8cm and a slant height of 12cm.Calcuate its vertical height.




Answer (a)..... [2]

b) If y is inversely proportional to $r^2 + 1$ and $y = 32$

When $r = 1$,find the value of $y$ when $r = 7$.

Answer (b)..... [3]

5. Evaluate

(a) $17^{0}$

(b) $4^{5/2}$

(c) $(0.2)^{2}$

Answer (a)..... [1]

(b)..... [1]

(c)..... [1]

(d) A pyramid has a square base of length 3cm and a slant height of 5cm.
Find the volume of the pyramid.

Answer (d)..... [2]

6.

(a) $a^{2/3} \times a^{1/4}$

Answer (a)..... [2]

(b) $(a^{1/3} b^{2/5})^{3/4}$

Answer (b)..... [2]

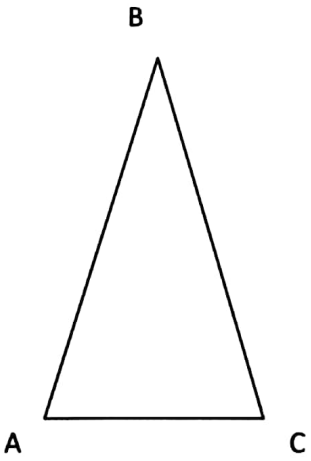
**7.** Solve the simultaneous equations:

**(a)** $4x - 3y = 14$

$2x = -3 - y$

Answer (a)..... [3]

**(a)** ABC is an isoscles triangle with AB=BC and AC=32cm using as much information from the table as is necessary, calculate AB.




| | |
|---|---|
| Sin$\theta$ | 15/17 |
| Cos$\theta$ | 8/17 |
| Tan$\theta$ | 15/8 |

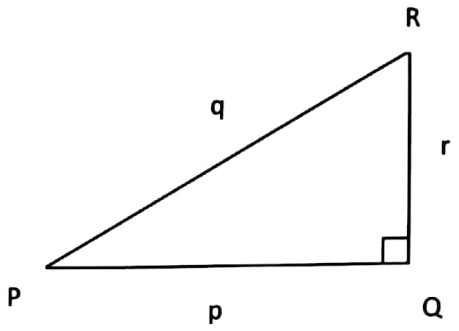
Answer (b)..... [2]

**8. (a)** For the giving right-angled triangle find:

(i) $\sin P$

(ii) $\cos P$

(iii) $\tan p$




Answer (a)..... [3]

**(b)** Solve the equation $\frac{3x+1}{2} - \frac{x}{3} = 1$

Answer (b)..... [2]

**9. (a)** $y$ is directly proportional to square root of $x$.
Given that $y = 12$ when $x = 36$ Find

**(i)** the formula for $y$ interms of $x$

Answer (i)..... [2]

**(ii)** the value of x when $y = 10$

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

**(b)** Find the volume of sphere of radius 3cm.

Answer (b)..... [2]

**10. (a)** The area of square is $36cm^2$.Find the length of the diagonal.

Answer (b)..... [2]

**(b)** Express as a fraction in its lowest form $\frac{2}{3x} - \frac{x-3}{10x^2}$

Answer (b)..... [3]