Paper 2 (50 marks)

Answer all the questions. You may use a calculator for this paper.

1. Use a calculator to evaluate the following. Give each answer correct to 3 significant figures.

(a) $\sqrt{4^2 - 2 \times 0.51 \times 3.2}$

(b) $\dfrac{\left(\frac{1}{3}\right)^2 + \left(\frac{1}{2}\right)^3}{\left[\frac{1}{5} - \frac{1}{6}\right]}$

(c) $\dfrac{\sqrt[3]{\frac{8}{27}} + (-7)^2}{\left(\frac{1}{2}\right)^3 - (0.2)^2}$

Ans: (a) _____ [2]

(b) _____ [2]

(c) _____ [2]

2. For a parallelogram, state
   (a) the number of lines of symmetry,
   (b) the order of rotational symmetry.

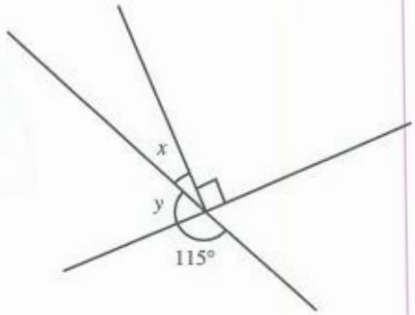
Ans: (a) _____ [2]

(b) _____ [2]

3. (a) $\angle ABC = 100°$. Draw and label clearly $\angle ABC$. [2]
   (b) Find $\angle x$ and $\angle y$.

   (a)

   (b)



Ans: (b) _____ [3]

4. (a) If $a : b = \frac{1}{4} : \frac{1}{5}$ and $b : c = 5 : 7$, find $a : b : c$.
   (b) To bake a cake, flour, butter and sugar must be mixed in the ratio 6 : 2 : 1. If 360 g of butter was used, how much flour was added?

Ans: (a) _____ [3]

(b) _____ [2]

5. (a) A part-time worker is paid \$5.50 per hour. How much will he earn in a day if he works from 8 a.m. to 5 p.m.?

(b) At a sale, Mrs James bought a handbag at \$30.40. What was its original price?

Ans: (a) _____ [3]

(b) _____ [3]

6. (a) Christy is y years old. Her sister, Charlene, is 3 years older than her. Her brother, Christopher, is 5 years younger than her. Write algebraic expressions for

(i) Charlene's age, and

(ii) Christopher's age.

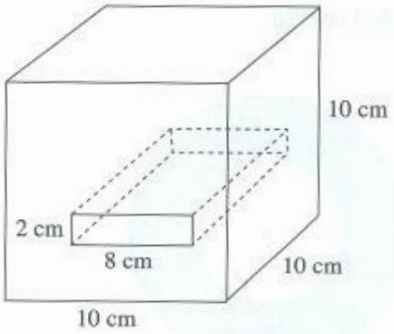
(b) Given that $V = \frac{1}{3}\pi r^2 h$, find V if $\pi = \frac{22}{7}$, $r = 21$ and $h = 16$.

Ans: (a) (i) _____ [1]

(ii) _____ [1]

(b) _____ [2]

7. Calculate the volume and surface area of the figure below.



Ans: _____ [7]

8. (a) Justin bought n T-shirts for $\$p$.
   (i) How much was each T-shirt?
   (ii) Justin gave 3 T-shirts to his brother. How many T-shirts did he have left?
   (b) If $x\% = 0.2$, what is the value of x?
   (c) How many seconds are there in y mins?

Ans: (a) (i) _____ [1]

(ii) _____ [1]

(b) _____ [2]

(c) _____ [2]

9. The diagram below shows 2 concentric circles. The radius of the smaller circle is 4 cm and the area of the shaded region is 62.8 cm². Taking π to be 3.14, find
   (a) the area of the larger circle, and
   (b) the perimeter of the shaded region.

Ans: (a) _____ [3]

(b) _____ [4]