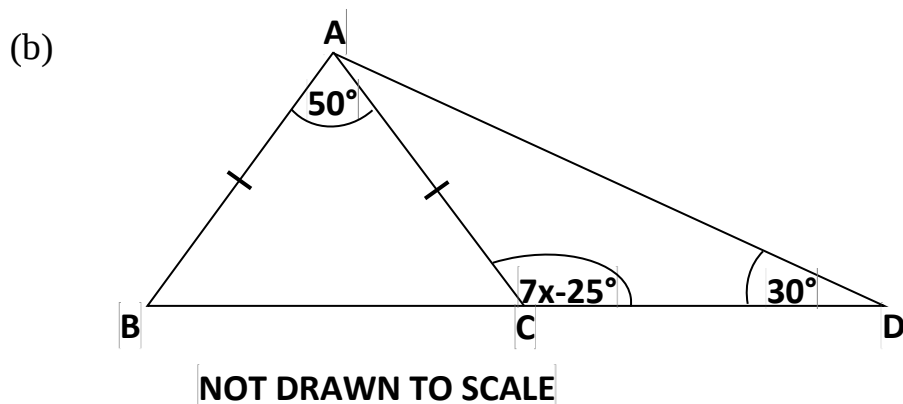


2015 BECE MATHEMATICS 2
MATHEMATICS 2

1. (a) Find the difference between the product of 2.5 and 7.5 and the sum of 2.75 and 9.55.
 (b) Solve $\frac{3x+2}{3} - \frac{3-x}{8} = \frac{1}{6}$
 (c) A container is 24 m long, 9 m wide and 8 m high. How many books can it hold if each book is 20 cm long, 16 cm wide and 6 cm thick.

2. (a) In a test consisting of 90 questions, Ama answered 75% of the first 40 questions correctly. If she had to get a score of 80% in the test,
 (i) how many questions did she answer correctly out of the first 40 questions?
 (ii) how many questions should she answer correctly out of the 90 questions ?
 (iii) what percentage of the remaining 50 questions should she answer correctly in order to get the 80%?
 (b) Three interior angles of a pentagon are 100° , 120° and 108° . Find the size of each of the remaining two interior angles, if one of them is three times the other.

3. (a) Given that vectors $\mathbf{p} = \begin{pmatrix} 2 \\ 2 \end{pmatrix}$ and $\mathbf{q} = \begin{pmatrix} x \\ y \end{pmatrix}$, find :
 (i) $\mathbf{q}$ if $\mathbf{q} - \mathbf{p} = \begin{pmatrix} 12 \\ 9 \end{pmatrix}$;
 (ii) the magnitude of the vector $\mathbf{q} - \mathbf{p}$



In the diagram $|AB| = |AC|$, angle $ADC = 30^\circ$ and angle $ACD = 7x - 25^\circ$. Find

- (i) the value of x ;
 - (ii) angle DAC ;
 - (iii) angle BAD .
-
4. (a) The Value Added Tax (VAT) paid by a man on a deep freezer was GHC 90.00. If VAT was charged at 15%,
 (i) what was the price of the deep freezer?
 (ii) How much did the man pay including VAT?

(b) The average of the numbers 5, 7, 2, 6, x, (x+1), 7 and 4 is 5. Find the value of x.

(c) Simplify:
$$\frac{mn+mp+nq+pq}{n+p}$$

5. (a) A cylinder which has a height of 90 cm and diameter 14 cm is closed at both ends.

Find:

(i) its total surface area;

(ii) the volume of the cylinder

[Take $\pi = 22/7$]

(b) (i) Using a ruler and a pair of compasses only, construct triangle PQR such that $|PQ| = 8\text{cm}$, $\angle PQR = 120^\circ$ and $|QR| = 6\text{ cm}$.

(ii) Measure:

(α) $|PR|$;

(β) $\angle QPR$

6. The table shows the distribution of grades of candidates in an examination.

Grade	1	2	3	4	5	6
Frequency	2	3	6	5	4	10

(a) Using a graph sheet, draw a bar chart for the distribution

(b) If all candidates who obtained grades above grade 3 were awarded credit, find the probability that a candidate selected at random obtained credit.

(c) Calculate, correct to the nearest whole number, the mean grade of the candidates.

END OF ESSAY TEST