# WAEC MATHEMATICS
# 2018 QUESTIONS

Compiled by

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# QUESTION 1

A used car was purchased at ₦900,000.00. Its value depreciated by 30% in the first year. In each subsequent year, the depreciation was 22% of its value at the beginning of that year. If the car was bought on 1st March, 2011, calculate, correct to the nearest hundred naira, the value of the car on 28th February, 2018.

# QUESTION 2

a. The graph of $y=2px^2-p^2x-14$ through the point (3,10). Find the value of p

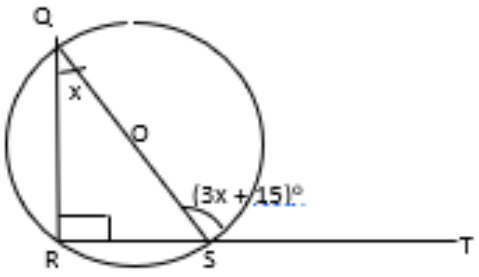
b. Two lines, $3y-2x=21$ and $4y+5x=5$, intersects at point Q. Find the coordinates of Q

# QUESTION 3

a. The diagonals of a rhombus are 10.2cm and 9.3cm long . Calculate correct to one decimal place, the perimeter of the rhombus

b. Given that $\sin x=\frac{3}{5}, 0^o<x<90^o$, find the value of $5cosx-4tanx$

# QUESTION 4

a. 


In the diagram QOS is a diameter, $\angle RQS=x^o \wedge \angle QST=\angle$. Find:

i. The value of x
ii. If $2N4_{seven} = 15N_{nine}$, find the values of N

# QUESTION 5

a. If the mean of *m*, *n*, *s*, *p* and *q* is 12, calculate the mean of $(m+4),(n-3),(s+6),(p-2) \wedge (q+8)$.

b. In a community of 500 people, the 75th percentile age is 65 years while the 25th percentile age is 15 years. How many of the people are between 15 and 65 years?

# QUESTION 6

In a roadworthiness test on 40 cars, 60% passed. The number that failed had faults in Clutch, Brakes and Steering as follows: Clutch only – 28; Clutch and Steering – 14; Clutch, Steering and Brakes – 8; Clutch and Brakes – 20; Brakes and Steering only – 6. The number of cars with faults in Steering only is twice the number of cars with faults in Brakes only.

a. Draw a Venn diagram to illustrate this information.

b. How many cars had:
   i. Faulty Brakes?

   ii. only one fault?

# QUESTION 7

a. Find the equation of the line passing through the points (2, 5) and (-4, -7).

b. Three ships P, Q and R are at sea. The bearing of Q from P is  and the bearing of P from R is . If |PQ| = 5 *km* and |PR| = 8 *km*,
   i. illustrate the information in a diagram.
   ii. calculate, correct to **three** significant figures, the:
      I. distance between Q and R;
      II. bearing of R from Q.

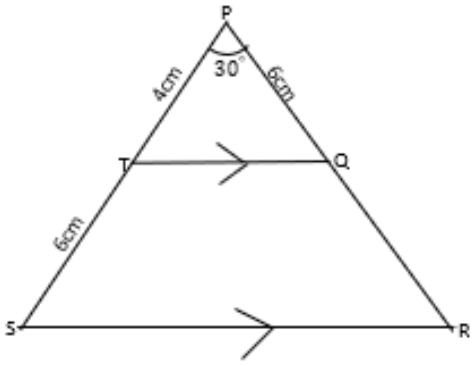
# QUESTION 8

a. Lamin bought a book for ₦300.00 and sold it to Bola at a profit x%. Bola then sold the same book to James at a profit of x%. If James paid ₦$(6x+\frac{3}{4}¿$ more for the book than what Lamin paid, find the value of x.

b. Find the range of values of x which satisfies the inequality $3x-2<10+x<2+5x$

# QUESTION 9

a. j



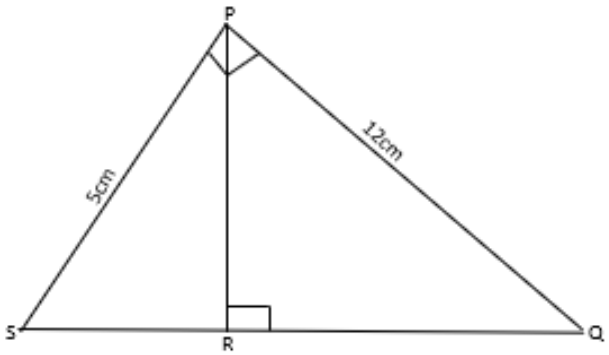

In the diagram, $¿PT \vee ¿4\,cm, \vee TS \vee ¿6\,cm, \vee PQ \vee 6\,cm \wedge ¿SPR = 30^o$. Calculate nearest to the whole number;

i. |SR|

ii. Area of TQRS

# QUESTION 10

a.




In $\Delta PQS, \vee PQ \vee ¿ 12\,cm, \vee PS \vee ¿ 5\,cm, < PRQ = 90^{o}$. Find correct to three significant figures, $¿\, PR \vee ¿$

b. The lengths of two ladders, L and M are 10m and 12m respectively. They are placed against a wall such that each ladder makes the same angle with the horizontal ground. If the foot of L is 8m from the foot of the wall,
   i. Draw a diagram to illustrate this information
   ii. Calculate the height at which M touches the wall

# QUESTION 11

a. Copy and complete the table of values $y = 2x^2 + x - 10 \; for - 5 \le x \le 4$

| x | -5 | -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| y | | | 5 | | -9 | -10 | | 0 | | |

b. Using the scale of 2cm to 1 unit on the x-axis and 2cm to 5 units on the y-axis, draw the graph of $y = 2x^2 + x - 10 \; for - 5 \le x \le 4$

c. Use the graph to find the solution of:
   i. $2x^2 + x = 10$
   ii. $2x^2 + x - 10 = 2x$

# QUESTION 12

a. If x = , y =  and z = , find scalars p and q such that px + qy = z.
b. Using a scale of 2 cm to 2 units on both axes, draw on a graph paper two perpendicular axes 0*x* and 0*y* for  respectively.

c. Draw, on the same graph paper, indicating clearly the vertices and their coordinates,the quadrilateral WXYZ with W(2, 3), X(4, -1), Y(-3, -4) and Z(-3, 2); the image W1X1Y1Z1 of the quadrilateral WXYZ under an anticlockwise rotation of  about the origin where W W1, X  X1, Y  Y1 and Z  Z1

# QUESTION 13

| *Marks* | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 |
|---|---|---|---|---|---|---|---|---|---|
| *Frequency* | 1 | 1 | *x* | 5 | *y* | 1 | 4 | 3 | 1 |

The frequency table shows the marks distribution of a class of 30 students in an examination. The mean mark of the distribution is 52.

a. Find the values of *x* and *y*.

b. Construct a group frequency distribution table starting with a lower class limit of 1 and a class interval of 10.

c. Draw a histogram for the distribution.

d. Use the histogram to estimate the mode.