SECTION A : Multiple Choice Questions [15 marks]

1. Ann is going to draw a statistical diagram to show the distribution of the number of mobile devices the students have in her class. Which of the following statistical diagrams is the most suitable one she should use?

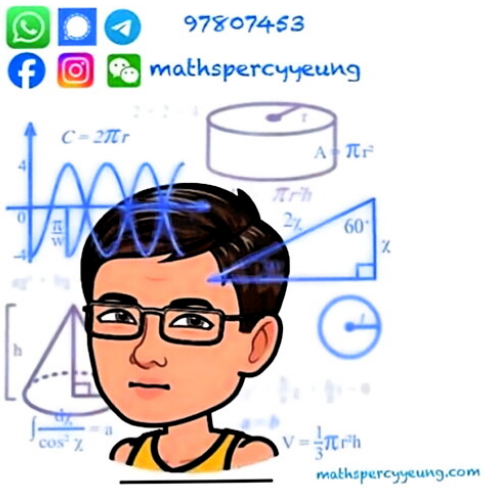
   A. Bar chart
   B. Histogram
   C. Frequency polygon
   D. Cumulative frequency polygon

2. The scale of a map is 1: 400 000. If the actual length of a road is 3.6 km, find the length of the road on the map.

   A. 0.9 cm
   B. 1.8 cm
   C. 2.7 cm
   D. 3.6 cm

3. Suppose x and y are in an inverse proportion such that when $x = 24$, $y = 18$. Find the value of x when $y = 36$.

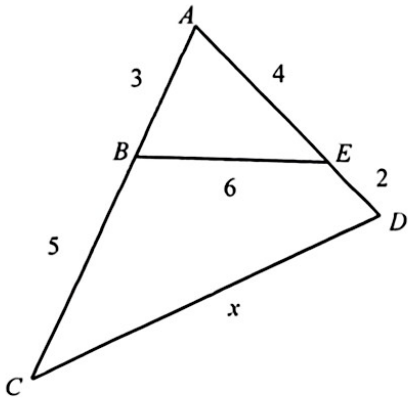
   A. 48
   B. 36
   C. 27
   D. 12



4. If point $A\ (1, a)$ lies on the graph of $3x - y = 8$, then $a =$

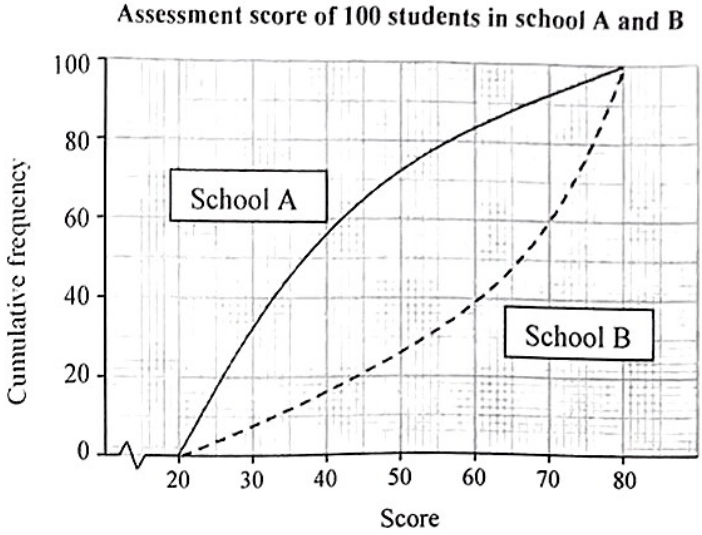
   A. -3.
   B. -5.
   C. 3.
   D. 5.

5. In the figure, if $\Delta ABE \sim \Delta ADC$, $x =$



   A. 8.
   B. 10.
   C. 12.
   D. 14.

6. The following cumulative frequency curve shows the distribution of the assessment score of 100 students in school A and B.



Which of the follow statements must be true?

I. School B's median is higher than that of school A.
II. More students in school B have a score above 60.
III. The highest score in school B is higher than that in school A.

A. I and II only
B. I and III only
C. II and III only
D. I, II and III

7. Let a, b and c be non-zero numbers. If $2a=3b$ and $\frac{b}{c}=\frac{4}{5}$, then $\frac{a+2b}{b+4c}=$

A. $\frac{11}{24}$.
B. $\frac{4}{9}$.
C. $\frac{7}{12}$.
D. $\frac{12}{7}$.

8. In a bank, 363 HKD (Hong Kong dollars) can be exchanged for 66 CAD (Canadian dollars) and 50 USD (US dollars) can be exchanged for 390 HKD. How much CAD can be exchanged for 165 USD?

A. 52 CAD.
B. 116 CAD.
C. 234 CAD.
D. 132 CAD.

9. Let a, b and c be non-zero numbers. If $3a-2b-c=0$ and $a+b-c=0$, then $a:b=$

A. $2:3$.
B. $3:2$.
C. $1:2$.
D. $2:1$.

10. In ΔABC, $\angle A=60°$, $AB=5$, $BC=7$ and $CA=8$. In ΔPQR, $\angle P=60°$, $PR=16$ and $QR=14$. Which of the following is true?

A. $\Delta ABC \sim \Delta PQR$ (AAA)
B. $\Delta ABC \sim \Delta PQR$ (ratio of 2 sides, inc. $\angle$)
C. $\Delta ABC \sim \Delta PQR$ (3 sides proportional)
D. ΔABC and ΔPQR may not be similar.

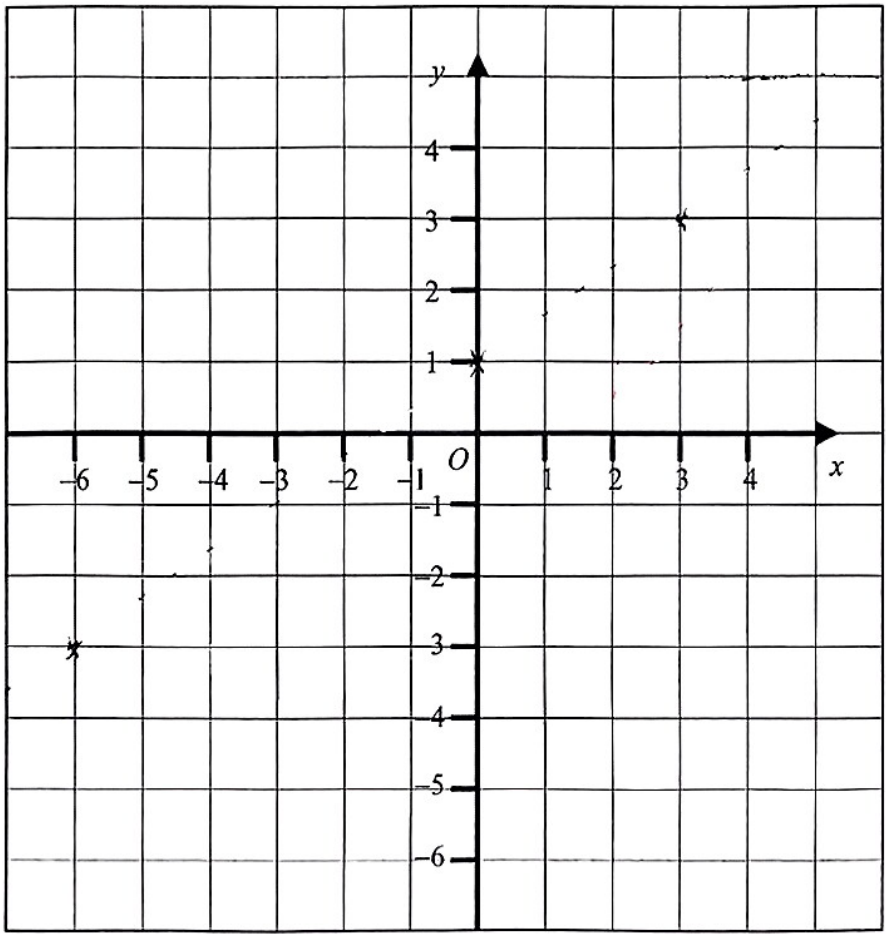
SECTION B : Conventional Questions [25 marks]

1. (a) Complete the following table. **(1 mark)**

$2x-3y=-3$

x	-6	0	
y			3

(b) Draw the graph of the equation $2x-3y=-3$. **(1 mark)**



2. Solve the simultaneous equations $\begin{cases} 2x+y-3=0 \\ 3x+2y-4=0 \end{cases}$ algebraically by showing your steps.

(2 marks)

3. In **Figure 1**, it is given that AB // DE, AE and BD intersect at C.

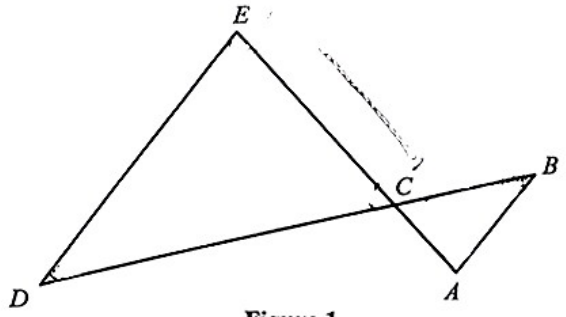


Figure 1

(a) Prove that $\Delta ABC \sim \Delta EDC$. **(2 marks)**

(b) It is given that $AC = 3$ cm, $BC = 4$ cm and $CD = 6$ cm. Find CE. **(2 marks)**

4. The frequency distribution table and the cumulative frequency distribution table below show the distribution of the ages of a group of people.

Age	Frequency
10 – 19	a
20 – 29	32
30 – 39	48
40 – 49	52
50 – 59	b
60 – 69	17

Age less than	Cumulative frequency
9.5	0
19.5	20
29.5	52
39.5	x
49.5	152
59.5	y
69.5	200

(a) Write down the class width of the class intervals. **(1 mark)**

(b) Write down the values of x and y. **(2 marks)**

(c) Someone claims that there are more than 25% of the people are of an age larger than or equal to 49.5 years old. Do you agree? Explain your answer. **(2 marks)**

(d) Write down the 10^{th} percentile of the distribution. **(1 mark)**

5. If $(x-2y):(4y+x)=2:3$, find $(x-y):2y$. **(3 marks)**

6. In a theme park, the ratio of the number of male to the number of female is $5:3$. If 6 males and 2 females leave the theme park, the ratio of the number of male to that of female becomes $3:2$. Find the original number of female in the theme park.

(4 marks)

7. In **Figure 2**, $ABCD$ is a quadrilateral. It is given that BD bisects $\angle ABC$, $AB = 9$ cm, $BC = 25$ cm and $BD = 15$ cm.

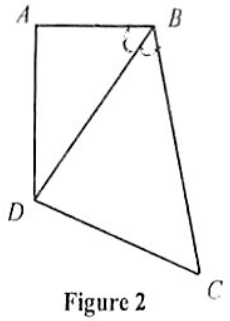


Figure 2

(a) Prove that $\Delta ABD \sim \Delta DBC$. **(2 marks)**

(b) It is given that DC is longer than AD by 7 cm. Someone claims that the perimeter of quadrilateral $ABCD$ is greater than 50 cm. Do you agree? Explain your answers. **(2 marks)**

END OF PAPER