

## Grade 10 Maths Practice Test Feb 20

### Q1.

Tara suspects that a die lands on certain numbers more often than others. She throws it 50 times with the following results.

6 1 4 4 2 5 4 1 2 3 4 3 2 4 1 2 6 3 2 6 6 6 6 1 4 5 6 4 6 4 2 6 3 1 2 2 6 5 4 3 1 6 6 2 5 5 2 1 4 5

a. Add the data to the Frequency Table.

(1)

Dice Number	Frequency	Cumulative Freq.

b. Find the median dice number.

\_\_\_\_\_

(2)

c. Calculate the mean dice number.

\_\_\_\_\_

(2)

**Q2.**

Make c the subject of  $x = \frac{-b + \sqrt{b^2 - 4ac}}{2a}$

Show your work algebraically.

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(Total for the question = 5)

**Q3.**

$$t = \frac{m_1 - m_2}{1 + m_1 m_2}$$

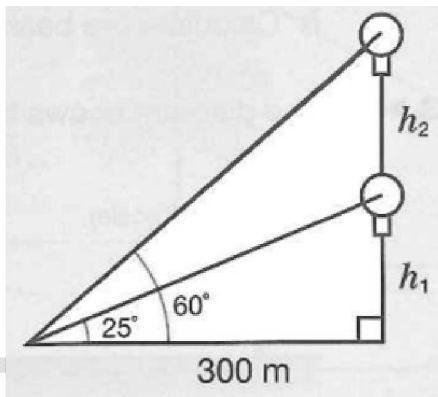
If  $t = 0.5$  and  $m_1 = 3$ , find  $m_2$ .

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(Total for the Question = 3)

**Q4.**

A hot-air balloon rises vertically from the ground, stopping  $h_1$  meters above the ground before rising  $h_2$  meters further.



a. Find the heights  $h_1$  and  $h_2$ .

$h_1$  \_\_\_\_\_ m,  $h_2$  \_\_\_\_\_ m

(2)

b. The balloon takes 1 minute to rise from the ground to  $h_1$ . It takes a further 5 minutes to rise to its highest point. Calculate the average speed of the total ascent in m/s.

\_\_\_\_\_ m/s (3)

(Total for Question = 5)

**Q5.** Diagram NOT accurately drawn



a. Find the angle of the triangle above.

Show all work.

\_\_\_\_\_°

(2)

b. Find the length of the Hypotenuse.

Show all work

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(2)  
(Total for question = 4 marks)

Q6.

Find the price of this set of drawers before the reduction.



Show all work. Give your answer correct to the nearest dollar.

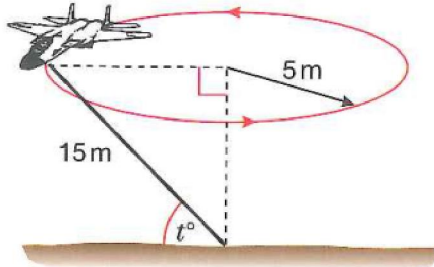
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(2)

(Total for question = 2)

**Q7.**

A toy plane attached to a 15m wire is flying in a horizontal circle of radius 5 m. What angle does the wire make with the ground?



Show All Work and give your answer to 2 significant figures.

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(Total for question = 2 marks)

**Q8.**

The training times (in seconds) of Zola to run ten 100m sprints are shown in the table.  
Find the median, inter-quartile range and range of these times.

14.1	14.1	15.2	13.9	13.1	12.7	14.3	15.2	16.0	16.2
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Show all work and calculate your answers to 1 decimal place.

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\_\_\_\_\_ median

\_\_\_\_\_ IQR

\_\_\_\_\_ Range

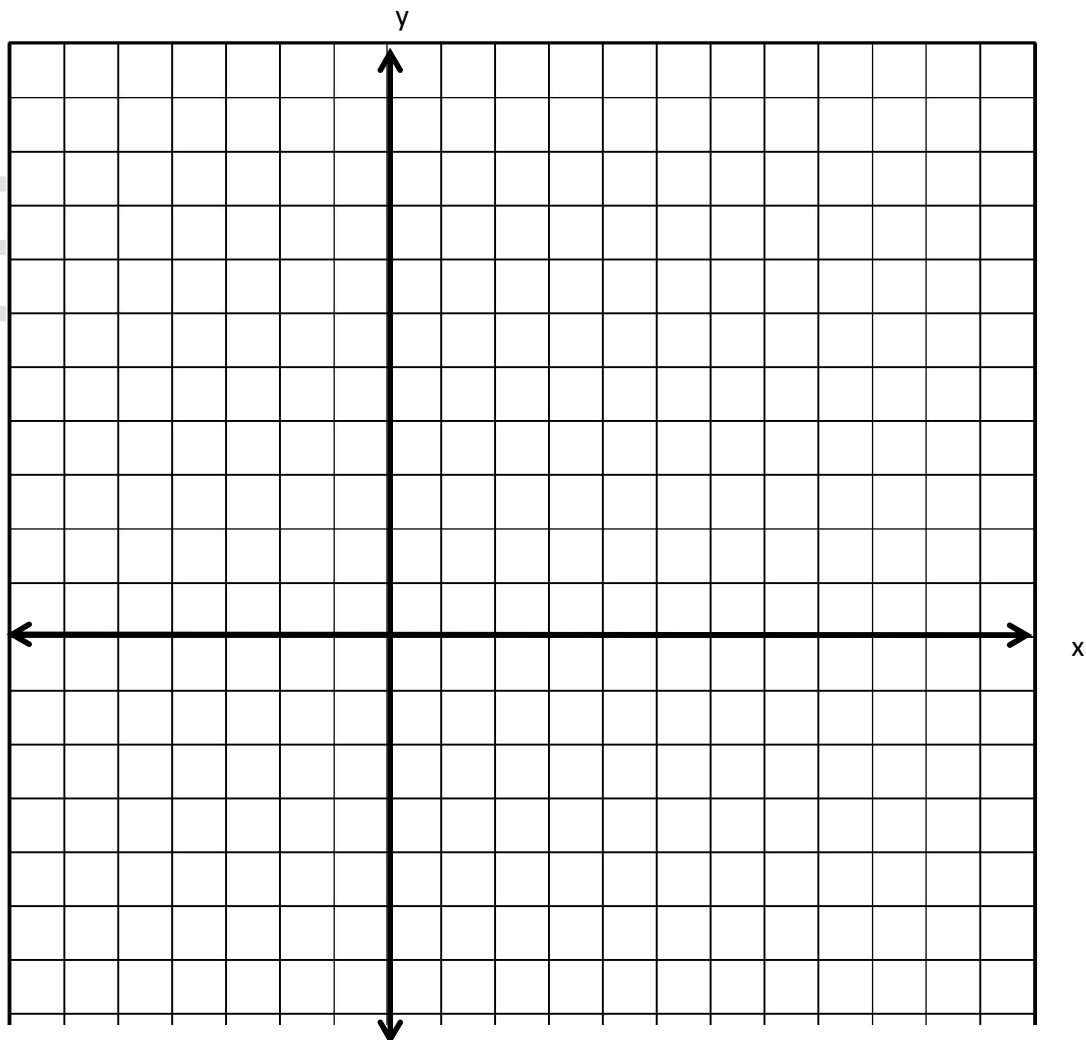
**(Total for question = 3)**



Q9.

Copy and complete the table and use it to draw the graph of  $y = x^2 - 2x - 5$  for  $-2 \leq x \leq 4$ .

x	-2	-1	0	1	2	3	4
y		-2	-5		-5		



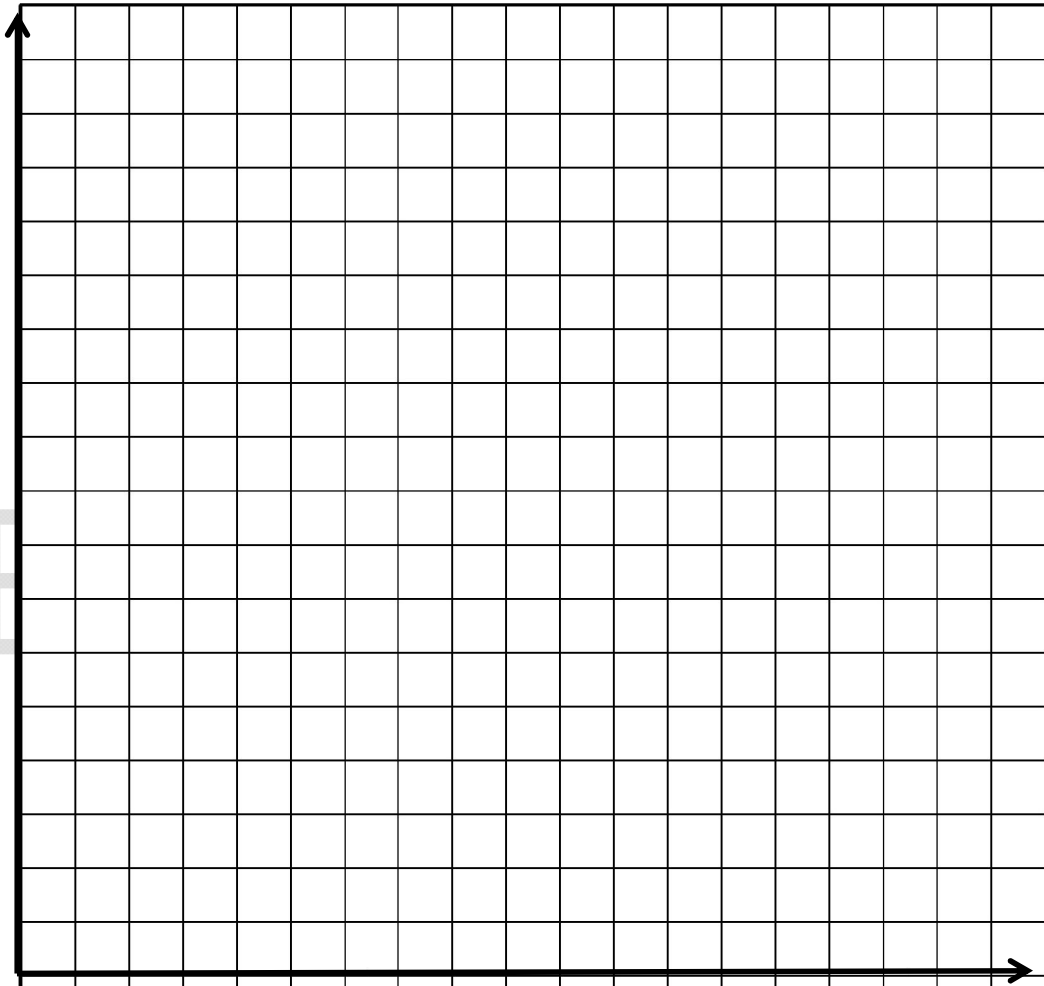
Use this graph to find approximate solutions to the equation  $x^2 - 2x - 5 = 0$ .  
Check your answers.

\_\_\_\_\_ / \_\_\_\_\_  
**(Total for question = 8)**

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Label the x and the y axis label the numbers to show a good fit.



Use this graph to estimate the

- a. Median   b. Lower quartile   c. Upper quartile   d. Inter-quartile range

\_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_

If the mark for the highest grade pass (merit) in this exam was 130 marks, calculate the percentage of pupils who gained this merit.

\_\_\_\_\_ %

**(Total for question = 7)**

**END OF TEST**

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