DIRECTORATE FOR QUALITY AND STANDARDS IN EDUCATION
Department of Curriculum Management
Educational Assessment Unit

National Sports School Entrance Examination 2017

YEAR 8 **MATHEMATICS** **TIME: 1h 40min**
Paper 2

Name:_____ Index Number:_____

Question	1	2	3	4	5	6	7	8	9	10	11	12	Total Paper 2	Total Paper 1	Global Mark
Mark															

- This paper contains 12 questions.
- Answer all questions.
- Calculators are allowed but **all necessary working must be shown**.

1. $P = \dfrac{\sqrt{(6.95^2 - 4.1 \times 1.76 \times 3.099)}}{3.099 + 1.76}$

a) **Round** each of the following numbers correct to the **nearest whole number**.

6.95 → ____	4.1→ ____	3.099 → ____	1.766 → ____

b) Use your rounded numbers in (a) to **estimate** the value of *P*.

Ans: _____

c) Use your calculator to find the value of *P*, giving your answer correct to 2 decimal places.

Ans: _____

_____ (6 marks)

2.

a) Expand and simplify. $3(2x - 1) + 4(x + 2)$

b) Factorise completely. $12y + 8z - 4$

c) Solve the equation. $8w - 3 = 5w + 12$

_____ (7 marks)

3. Timothy uses a string to measure the distance round a square tile. He finds it to be 180 cm.

a) Show that the length of the side of the tile is 0.45 m.

b) Calculate the **area** of the tile. Give your answer in m^2**.**

Ans: _____

c) A basement is 19.8 m long and 4.95 m wide.
Calculate the **area** of the floor of the basement.

Ans: _____

d) How many tiles does Timothy need to cover the floor?

Ans: _____

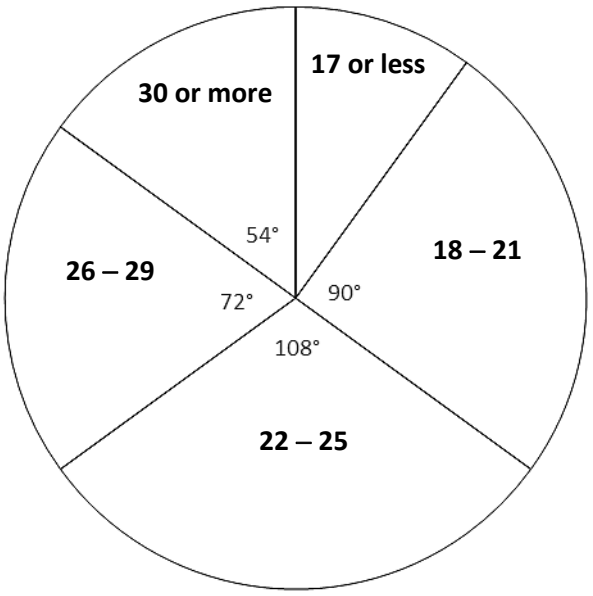
e) The tiles cost €2.20 each and a tile layer charges €10.75 per m^2.
Calculate the **total cost** for buying and laying the tiles.
Give your answer to the nearest euro.

Ans: _____

_____ (10 marks)

4. The pie chart shows the distribution of **840** football players by age.

Ages in years of all league football players



a) What **fraction** of the players are between the ages of 18 and 21?

Ans: _____

b) How many players are between the ages of 22 and 25?

Ans: _____

c) How many players are older than 25?

Ans: _____

d) What **percentage** of the players are eligible to be called for the under 18 national team?

Ans: _____

_____ (9 marks)

5.

a) A solid metal cuboid measures 10 cm by 8 cm by 7 cm. Calculate the **volume** of the cuboid.

Ans: _____

b) The cuboid is melted down and cast into a number of cubes of side 2.5 cm. Work out the number of **whole cubes** that can be formed.

Ans: _____

_____ (5 marks)

6. I have four coins in my left pocket: they are 10c, 10c, 20c and €1. I also have five coins in my right pocket: they are 10c, 50c, 50c, €1 and €1. One coin is picked at random from each pocket and added together.

a) Complete the possibility space below.

Left Pocket

Right Pocket	**10c**	**10c**	**20c**	**€1**
10c	20c			
50c				
50c				
€1				
€1				

b) Write a list of all the **possible outcomes**.

Ans: _____ , _____ , _____ , _____ , _____ , _____ , _____ , _____.

c) What is the **probability** that the total value is 60c?

Ans: _____

d) Which **outcome** has the greatest probability?

Ans: _____

e) What is the **probability** that the total value is less than €1?

Ans: _____

_____ (7 marks)

7. The last time I went to Australia, €20 was worth 29 Australian Dollars (AUD).

a) How many Australian dollars did I get for €900?

Ans: _____

b) When I came back I still had 319 Australian dollars. How much is this in euro?

Ans: _____

_____ (4 marks)

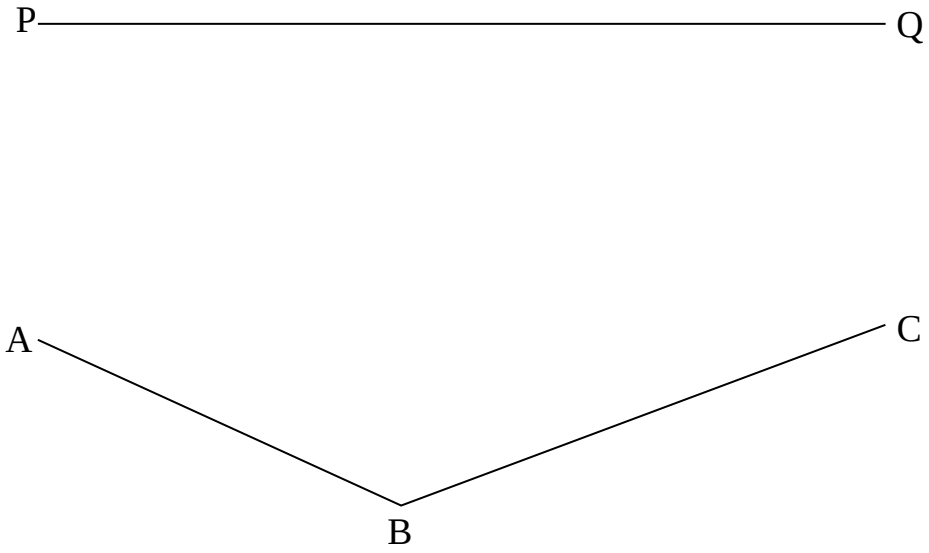
8. In this question **use ruler and compasses only**.

a) Construct the bisector of angle ABC. Let this bisector meet line PQ at T.

b) Construct the perpendicular from T which meets AB at R.

c) Construct the perpendicular from T which meets BC at S.

d) What is the name of the quadrilateral TRBS? Ans: _____



_____ (6 marks)

9. It costs €250 a week to hire a holiday flat. A 15% discount is offered for early bookings. A deposit of 40% has to be paid at the time of the booking.

a) Calculate the **discounted price** for a **three-week early booking**.

Ans: _____

b) Work out the deposit.

Ans: _____

_____ (4 marks)

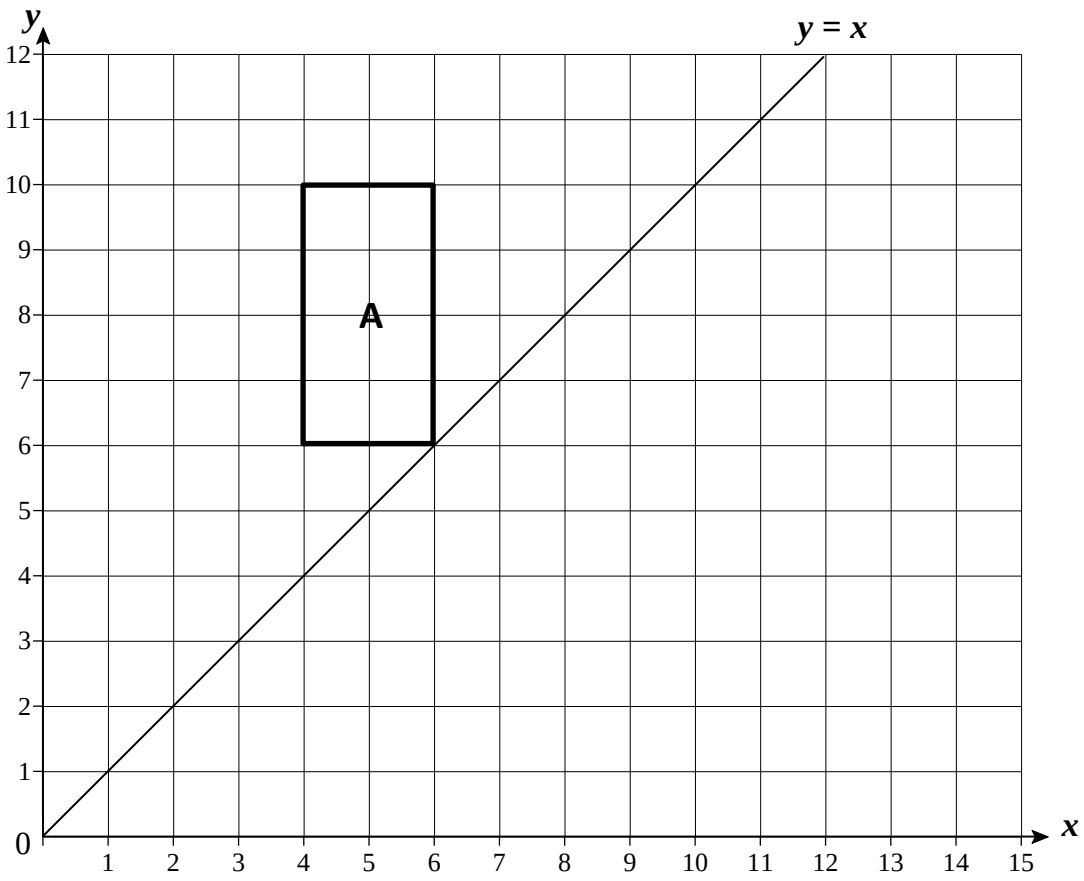
10.

a) Draw the **reflection** of rectangle A in the line $y = x$. Label the image B.

b) **Translate** rectangle A using the translation vector $\begin{pmatrix} 4 \\ -6 \end{pmatrix}$. Label the image C.

c) **Describe fully** the single transformation from B to C.

Ans: _____



_____ (6 marks)

11. The table shows the values of a linear relationship between x and y.

x	–1	0	3	
y	–5		3	5

a) Plot the two points on the grid on the next page and draw a straight line graph that passes through these points.

b) Use your graph to determine the missing values in the table. Enter these values in the table.

c) What is the ***y* intercept** of the graph?

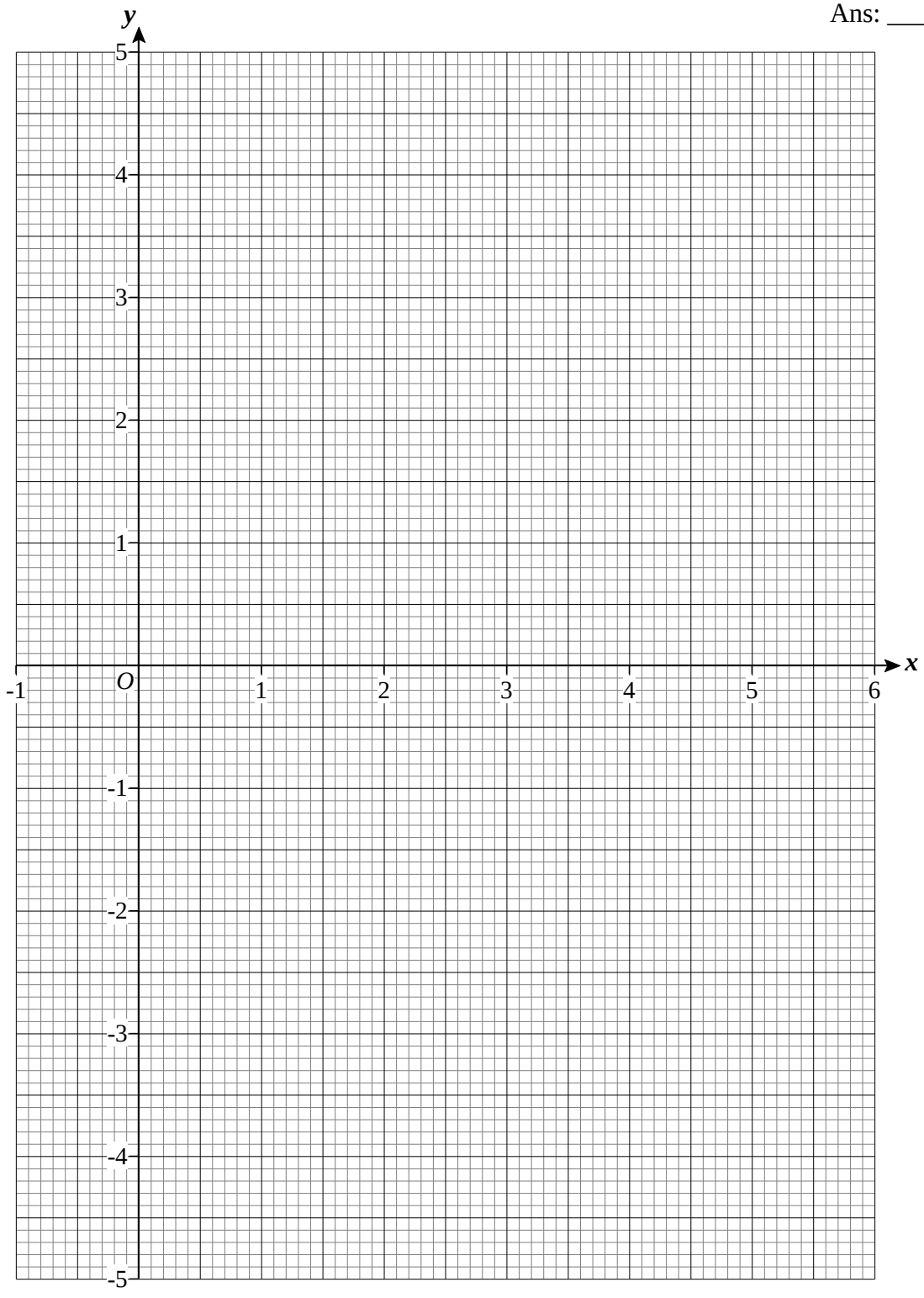
Ans: _____

d) Determine the **gradient** of the graph.

Ans: _____

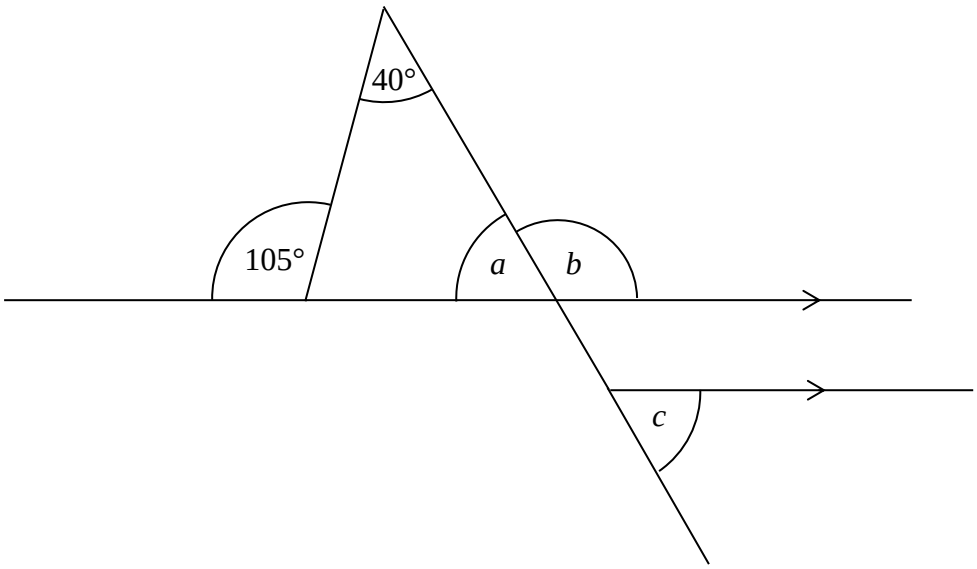
e) Write down the **equation** of the graph.

Ans: _____



(10 marks)

12. Find the size of the angles marked *a*, *b* and *c*. Give reasons for your answers.



Ans: *a* = _____

Reason _____

Ans: *b* = _____

Reason _____

Ans: *c* = _____

Reason _____

_____ (6 marks)

END OF PAPER