



Pocklington School

13+ Mathematics Sample 2 For 2020

Name	
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Time Allowed: 45 Minutes

- Calculators are not allowed.
- You are advised to show your working in the spaces provided and write your answers in the spaces provided.
- Use blue or black pen.
- If you make a mistake, cross it out but do not use tippex.
- Diagrams are not drawn to scale.

1. Calculate the following, showing a clear method where appropriate:

a. $25 \div (2^2 + 6 - 5)$

_____ (2 marks)

b. $34.5 + 1.89 + 300$

_____ (2 marks)

c. 2.3×1.9

_____ (2 marks)

d. $44.5 \div 0.5$

e. $4^3 - 17$

_____ (2 marks)

f. $3836 \div 7$

_____ (2 marks)

_____ (2 marks)

2. Solve the following equations:

a. $5y = 90$

$y = \underline{\hspace{2cm}}$ (1 mark)

b. $\frac{q}{3} = 27$

$q = \underline{\hspace{2cm}}$ (1 mark)

c. $4t - 9 = 63$

$t = \underline{\hspace{2cm}}$ (2 marks)

d. $p^2 = 25$

$p = \underline{\hspace{2cm}}$ $p = \underline{\hspace{2cm}}$ (2 marks)

e. $68 = 4(2x + 3)$

$x = \underline{\hspace{2cm}}$ (3 marks)

3. Calculate the following. You must show all your working out. Give your answers as mixed numbers in their simplest form.

a. $2\frac{1}{4} + 3\frac{1}{5}$

_____ (3 marks)

b. $\frac{3}{8} \times \frac{4}{27}$

_____ (2 marks)

4. Expand these brackets and simplify where possible:

a. $3(2x - 1)$

_____ (2 marks)

b. $3(2x + 1) + 4(x + 2)$

_____ (3 marks)

5. Put these numbers in order from smallest to largest:

13.43 13.043 13.403 13.4 13.34

_____ (2 marks)

6. Write down the next 3 terms in each of these sequences:

a. 2, 9, 16, 23, 30, _____, _____, _____

b. -1, -5, -9, -13, -17, _____, _____, _____

c. 1, 4, 8, 16, 32, _____, _____, _____

d. 8.2, 8.6, 9.0, 9.4, 9.8, _____, _____, _____

(4 marks)

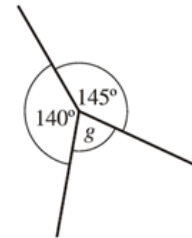
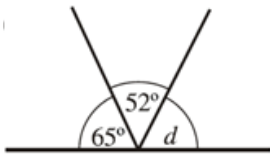
7. A car is travelling for 3 hours and it travels 180 miles. What is the car's average speed?

_____ miles per hour (2 marks)

8. There are 120 pupils in year 8 in Daventry High School.
95% of these pupils go out of school on a Geography field trip.
How many pupils are left at school?

_____ pupils (2 marks)

9. Find the missing angles from the diagrams below:



Angle d = _____ (1 mark)

Angle e = _____ (1 mark)

Angle f = _____ (1 mark)

Angle g = _____ (1 mark)

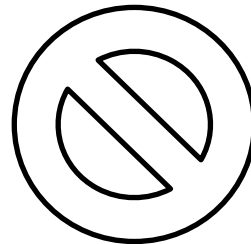
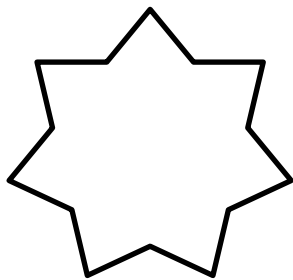
10. In a class of 30 children the boys and girls are in the ratio 3:2.

Calculate how many boys and girls there are.

There are _____ boys (1 mark)

There are _____ girls (1 mark)

11. Look at the shapes below and draw on any lines of symmetry with a ruler.



(3 marks)

12. Write these fractions as decimals:

a. $\frac{80}{200}$

_____ (1 mark)

b. $\frac{38}{50}$

_____ (1 mark)

13. Lauren gets up in the morning at 6:30am.

It takes her 10 minutes to get dressed.

It takes her 20 minutes to eat breakfast.

She watches TV for 10 minutes.

She sets off for school in the car and the journey takes 50 minutes.

Once at school she goes into 'before school club' for 30 minutes then she goes to school.

What time does she get into school?

_____ am (2 marks)

14. A large bar of chocolate has 80 squares.

a. Penny gives 25% of the bar of chocolate to Fred. How many squares does Fred get?

_____ squares (1 mark)

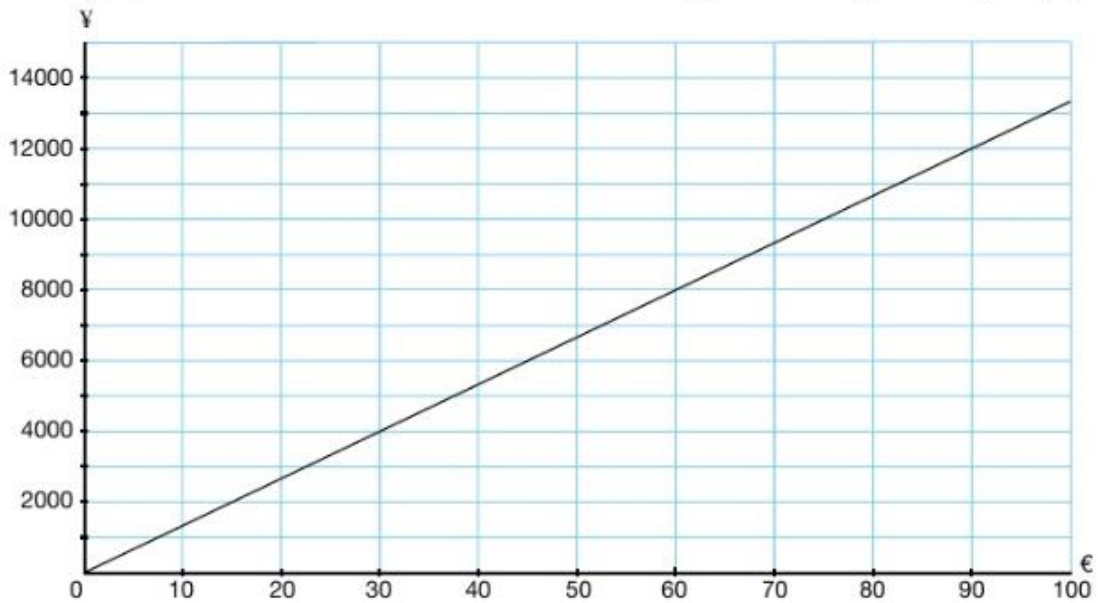
b. Out of the **remaining squares**, Penny gives 40% to Charlotte.

How many squares of chocolate does Penny keep for herself?

_____ squares (2 marks)

15.

The graph shows the conversion from euros (€) to the Japanese yen (¥).



a. Convert €90 to Yen.

_____ Yen (1 mark)

b. Convert ¥8000 to Euros.

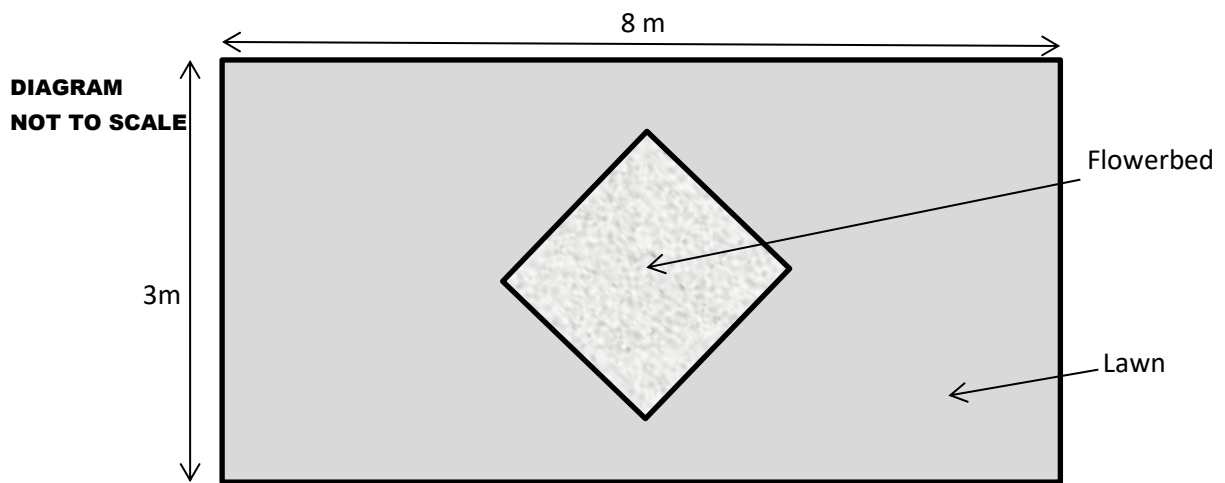
_____ Euros (1 mark)

c. A shop in Japan says it will accept Euros. Adam pays with a €100 note for a camera costing ¥6000. How many Yen should he receive in change?

_____ Yen (3 marks)

16. Here is a diagram of a flowerbed, which is in the middle of a lawn in a garden.

The flowerbed is a square, measuring 2m by 2m.



a. The gardener has to mow the lawn. What is the area of the lawn?

_____ m² (3 marks)

b. The gardener has to trim all the way around the edge of the entire lawn with a strimmer.

What is the length of the entire perimeter of the lawn edges that he has to trim?

_____ m (3 marks)

17. Calculate answers to the following expressions, when $a = 3$, $b = -2$ and $c = 5$.

a. $3ba + c^2$

_____ (3 marks)

b. $(c + b)^3$

_____ (2 marks)

c. $\frac{a^2}{3} + 5c$

_____ (2 marks)

END OF ASSESSMENT