Oxford Cambridge and RSA

GCSE (9-1) Mathematics

J560/05 Paper 5 (Higher Tier)

Question Set 1

1. **(a)** Simplify fully.

$$\frac{3a^8 \times 2a^5}{a^2}$$

(a) ..... **[3]**

(b) Solve.

$$\frac{6x-10}{5} = 1$$

(b) $x =$ ..... **[3]**

2. **(a)** A sunflower grows at a rate of 4 cm each day.

How many days does it take to grow from a height of 80 cm to more than 1.06 m?

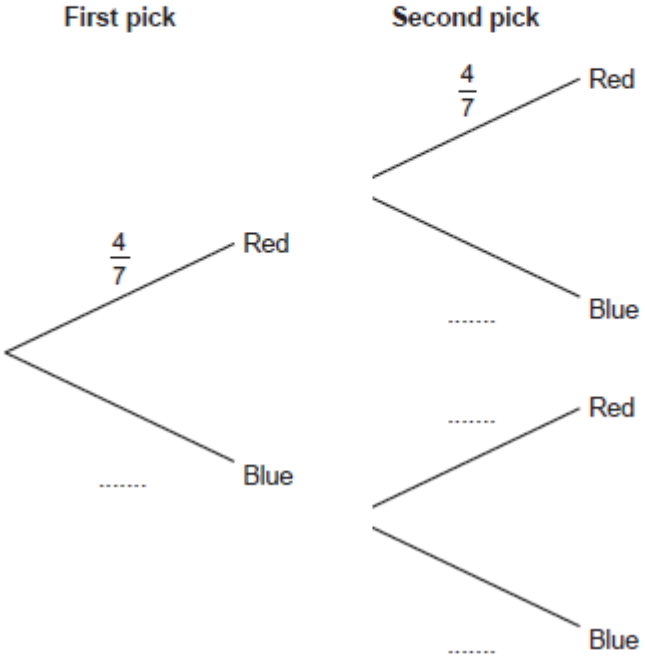
(a) ..... **[3]**

(b) If the sunflower grows at a faster rate, how would this affect your answer to part **(a)**?

..... **[1]**

3. A bag contains 4 red counters and 3 blue counters only.
Jack picks a counter at random and then replaces it.
Jack then picks a second counter at random.

(a) Complete the tree diagram.



[2]

(b) Work out the probability that Jack picks two red counters.

(b) ..... **[2]**

4. Mrs Mills buys 4 packs of treats for her cats, Fluff and Tigger.

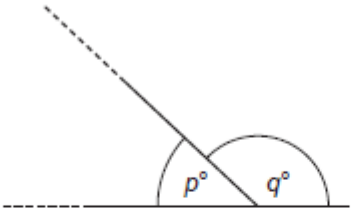
She gives Fluff $\frac{1}{6}$ of a pack each day.

She gives Tigger $\frac{1}{5}$ of a pack each day.

For how many complete days will the 4 packs of treats last?

..... **[5]**

5. An interior angle of an isosceles triangle is $p°$ and an exterior angle is $q°$.



Not to scale

It is given that $q = 5p$.

(a) Write the ratio $p : q$ in its simplest form.

(a) ..... : ..... **[2]**

(b) Work out the two different possible sets of angles for the isosceles triangle.

(b) Triangle 1: .....°, ...°, ...°

Triangle 2: .....°, ...°, ...°

[4]

6. **(a)** Write $\frac{1}{6}$ as a recurring decimal.

(a) ..... **[2]**

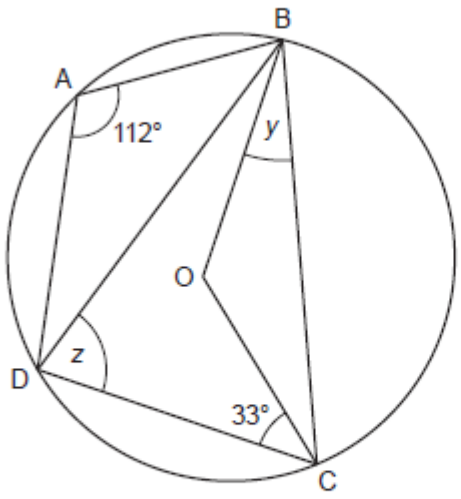
(b) Elsa divides a two-digit number by another two-digit number.
She gets the answer $0.1\dot{5}$.

She says that there is only one possible pair of numbers that will give this answer.
Is she correct? Show how you decide.

..... **[4]**

7. A, B, C and D are points on the circumference of a circle, centre O.

Angle BAD = 112° and angle DCO = 33°.



Not to scale

(a) Show that angle $y = 35°$.
Give reasons for each stage of your working. **[4]**

(b) Work out angle z.
Give reasons for your answer.

Angle z = ... ° because .....

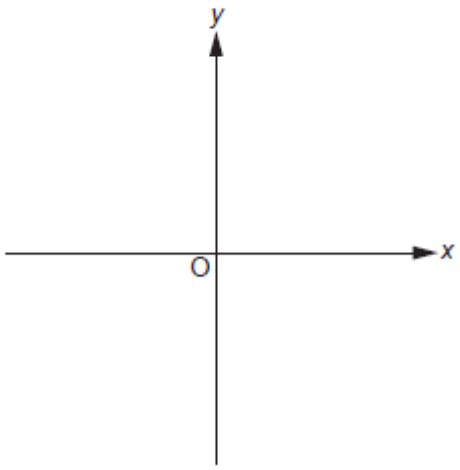
.....

..... **[3]**

8. **(a)** Write x^2+8x+3 in the form $(x+a)^2-b$.

(a) ..... **[3]**

(b) Sketch the graph of $y=x^2+8x+3$.
Show clearly the coordinates of any turning points and the y-intercept.



[4]

9. 21 people travelled to a meeting.

- 12 used a train.
- 6 used a car.
- 7 did not use a train or a car.
- Some used a train and a car.

Two people are chosen at random from those who used a train.

Find the probability that both these people also used a car.

..... **[6]**

Total Marks for Question Set 1: 51

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