ISEB Assessments
Year 8 Level 2 Maths Test 1

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This test contains a selected set of 10 questions in a particular topic order.

- 100 marks are available in total.
- You should take no more than 1 hour to complete the test.
- Write your answers in the spaces provided.
- Always write down your working, except when you are told not to.
- Calculators are not allowed.

1. (a) Write the following numbers in descending order of size, starting with the largest:

$$0.44 \quad \frac{4}{9} \quad 45\% \quad \frac{4}{10} \quad \frac{21}{50}$$

Answer: ..... (3)

(b) Some shirts are normally sold for £45 each.

SALE

All shirts were £45 now £36

In a sale I paid £36 for a shirt.

(i) How much money did I save?

Answer: £ ..... (1)

(ii) What was the percentage discount for the sale?

Answer: ..... % (2)

On a second shirt, I was offered a further 10% discount on the sale price.

(iii) How much did I pay for the second shirt?

Answer: £ ..... (2)

(iv) What was the overall percentage reduction on the original marked price for the second shirt?

Answer: ..... % (2)

2. Evaluate:

(a) 16.57 + 8.9

Answer: ..... (2)

(b) 53.7 − 5.37

Answer: ..... (2)

(c) 32.6 × 0.4

Answer: ..... (2)

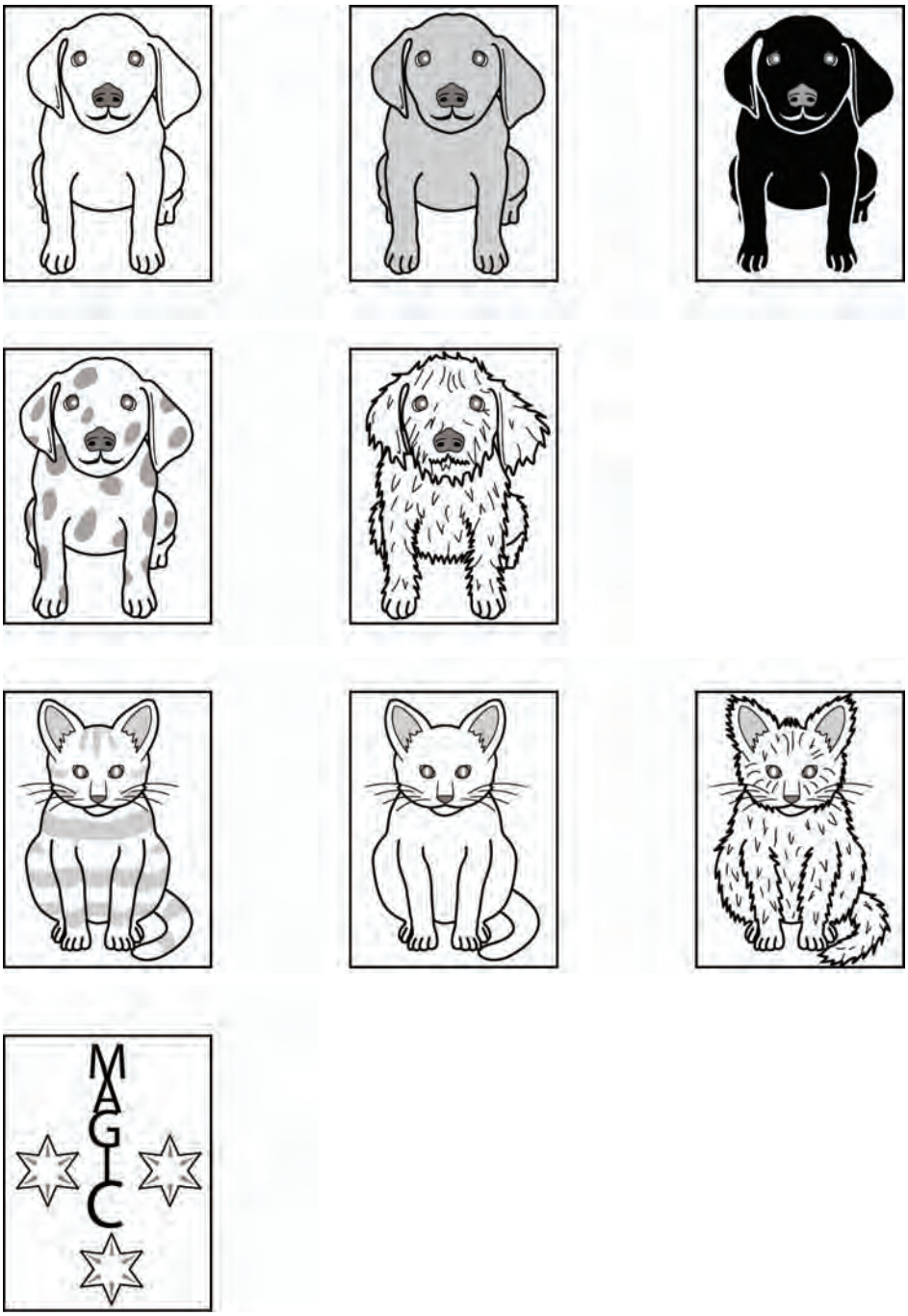
(d) 2.07 ÷ 0.3

Answer: ..... (2)

(e) 3.8^2

Answer: ..... (2)

3. A full set of *Swoppit* cards consists of 5 dog cards, 3 cat cards and one magic card as shown below.



(i) Jon has 3 full sets of cards.

How many dog cards does Jon have?

Answer: ..... dog cards (1)

(ii) Frank has 54 cards in full sets.

How many full sets does Frank have?

Answer: ..... sets (1)

(iii) Jill has 24 cat cards in her full sets.

How many dog cards does Jill have in these full sets?

Answer: ..... dog cards (2)

In a game using these cards, dog cards are worth 5 points each, cat cards are worth 3 points each and a magic card is worth 8 points.

(iv) What is the total points value of one full set?

Answer: ..... points (2)

(v) Carrie needs 3 more cards to complete her first full set.

The cards she has total 28 points.

Which three cards are missing from Carrie's set?

Answer: ....., ... and ..... (2)

(vi) Shanna has just four cards with a total value of 22 points.

Which four cards does Shanna have?

Answer: ..... (2)

4. One of three numbers is n

(i) Another number is three greater than n. Write down this number.

Answer: ..... (1)

(ii) Another number is three times n. Write down this number

Answer: ..... (1)

(iii) Write down, and simplify, an expression, in terms of n, for the sum of the three numbers.

Answer: ..... (2)

The sum of the three numbers is $^{-}2$

(iv) Write down an equation and solve it to find the value of n

Answer: n = ... (3)

(v) What is the largest of the three numbers?

Answer: ..... (1)

(vi) What is the product of the three numbers?

Answer: ..... (2)

5. (a) If $x = 2$, $y = {}^{-}3$ and $z = 1$, find the value of each of the following expressions:

(i) x + y

Answer: ..... (1)

(ii) yz

Answer: ..... (1)

(iii) $x(z - y)$

Answer: ..... (2)

Turn over to the next page for question 5 (b)

(b) Jasmine has a jar containing 180 sweets.

She eats 4 sweets from the jar every day.

(i) Complete the sequence below to show the number of sweets left in the jar after 5 days. (1)

after	1 day	2 days	3 days	4 days	5 days
sweets left	176	172	168		

(ii) How many sweets will be left in the jar after 8 days?

Answer: ..... sweets (1)

(iii) Write a formula for *s*, the number of sweets in the jar after *d* days

Answer: *s* = ... (2)

(iv) If Jasmine continues to eat 4 sweets each day from the jar, after how many days will she have no sweets left in the jar?

Answer: ..... days (2)

6. (a) Solve the following equations:

(i) $a + 9 = 7$

Answer: $a =$ ..... (1)

(ii) $\frac{1}{4}b = 12$

Answer: $b =$ ..... (1)

(iii) $4c + 5 = 20 - c$

Answer: $c =$ ..... (2)

(iv) $2(2d - 3) = 6$

Answer: $d =$ ..... (3)

(b) Find the missing number in each of the following sequences:

(i) 1, 4, 9, ... , 25, 36, … (1)

(ii) 10 000, 2000, 400, 80, ... , 3.2, … (1)

(iii) $\frac{3}{5}, \frac{5}{7}, \frac{7}{9}$, ... , $\frac{11}{13}$, … (1)

7. (a) (i) Construct the triangle *XYZ* when *XY* = 11 cm, angle *XYZ* = 58° and angle *YXZ* = 42° (3)

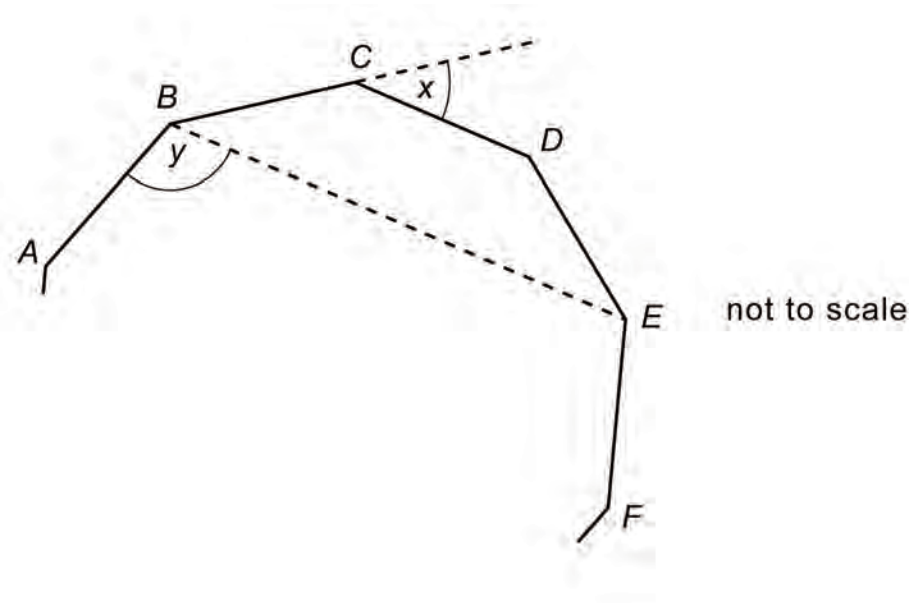
(ii) *P* is the point on the line *XY* which is nearest to *Z*.

Mark the point *P*.

Measure and write down the length *ZP*.

Answer: ..... cm (2)

(b) *ABCDEF* is part of a regular 24-sided polygon.



(i) Calculate the exterior angle, marked *x*.

Answer: *x* = ... ° (2)

(ii) Calculate the size of interior angle *BCD* of the regular 24-sided polygon.

Answer: ..... ° (1)

(iii) Calculate the size of the angle marked *y*.

Answer: *y* = ... ° (2)

8. An adventure course is in the shape of a triangle.

X is the start and finish point. *Y* is 800 metres north-east of *X*.

(i) Using a scale of 1 cm : 100 m, plot the position of *Y*. (2)

Z is 750 metres from *X* on a bearing of 340°

(ii) Plot the position of *Z*. (3)

(iii) What is the length of the course?

Give your answer to the nearest 50 metres.

Answer: ..... m (2)

(iv) Sandy completes the course in exactly 10 minutes.

What is his average speed in metres per second?

Answer: ..... m/s (3)

Turn over to the next page for question 9

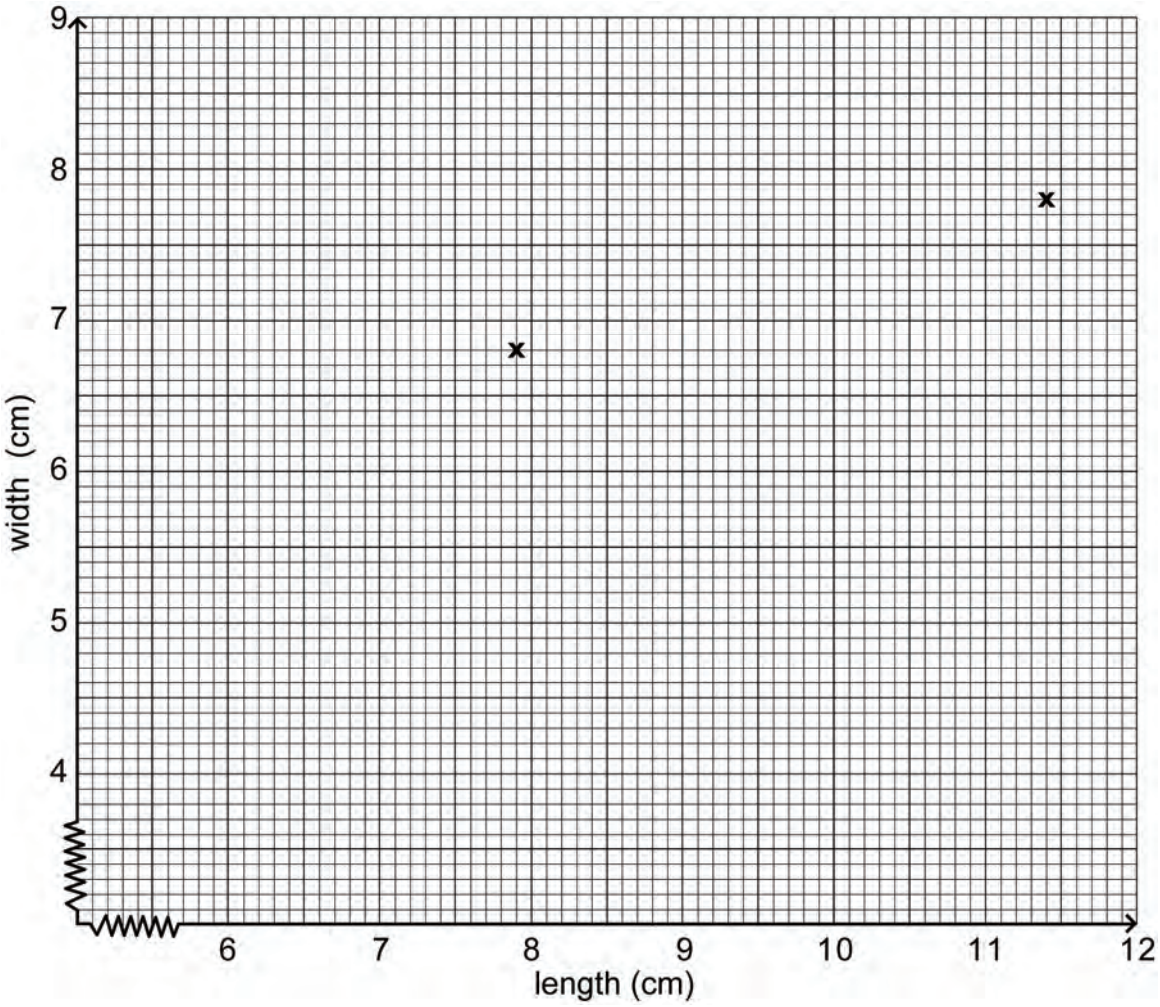
9. Gillian has been studying the leaves from a tree in the school grounds.

The table gives the length and width of ten leaves from the tree.

length (cm)	11.4	7.9	8.3	7.0	9.1	10.3	6.7	10.8	8.2	6.1
width (cm)	7.8	6.8	5.4	5.2	6.5	7.7	4.2	7.6	5.8	4.2

The first two points are plotted for you on the scatter diagram.

(i) Plot the rest of the points on the diagram. (5)



(ii) (a) Draw, by eye, the line of best fit. (2)

(b) What sort of correlation does this suggest?

Answer: ..... (1)

(iii) Use your scatter diagram to estimate the width of a leaf which has length 9.5 cm.

Answer: ..... cm (2)

Turn over to the next page for question 10

10. Seventy-two pupils took a mental arithmetic test. The frequency table below shows the marks they obtained out of 10

mark	3	4	5	6	7	8	9	10
frequency	1	2	6	7	23	19	11	3
angle	°	°	°	°	°	°	°	°

(i) Complete the table and draw a pie chart to show these results. (5)

(ii) Find the mark range in this test.

Answer: ..... marks (1)

(iii) State the modal mark.

Answer: ..... marks (1)

(iv) What is the probability that one of the 72 pupils, chosen at random, scored 9 or more marks in the test?

Give your answer as a fraction in its lowest terms.

Answer: ..... (1)

(v) If the pass mark is 7 or more, what is the probability that a pupil chosen at random failed?

Give your answer as a fraction in its lowest terms.

Answer: ..... (2)