

Linear equations (Junior UKMT)

These questions must be attempted without a calculator

Topics covered in the questions below may not necessarily be from the topic of the title.

1. Today, the sun rose at Greenwich at 6:45 am and will set 12 hours and 44 minutes later.

At what time will the sun set at Greenwich today?

A 6:29 pm B 7:09 pm C 7:29 pm D 7:39 pm E 9:29 pm

2. Last Saturday, each half of a hockey match lasted 40 minutes and the half-time interval was a quarter of an hour. The match started at 2:30 pm.

At what time did it finish?

A 3:10 pm B 3:25 pm C 3:50 pm D 3:55 pm E 4:05 pm

3. The Bean family are very particular about beans. At every meal all Beans eat some beans. Pa Bean always eats more beans than Ma Bean but never eats more than half the beans. Ma Bean always eats the same number of beans as both children together and the two children always eat the same number of beans as each other. At their last meal they ate 23 beans altogether.

How many beans did Pa Bean eat?

A 7 B 9 C 11 D 13 E 15

4. $\Delta + \bullet = *$, $\Delta = \bullet + \square$, $\Delta + \Delta + \bullet = * + \square + \square$. Then Δ equals

A $* + *$ B \bullet C $\square + \square$ D $*$ E \square

5. Dilly is 7 years younger than Dally. In 4 years' time she will be half Dally's age.

What is the sum of their ages now?

A 13 B 15 C 17 D 19 E 21

6. If $a \times b = 2$, $b \times c = 24$, $c \times a = 3$, and a , b and c are all positive, what is the value of $a + b + c$?

A $7\frac{1}{2}$ B $10\frac{1}{2}$ C 12 D 16 E 19

7. At Spuds-R-Us, a 2.5kg bag of potatoes costs £1.25.

How much would one tonne of potatoes cost?

A £5 B £20 C £50 D £200 E £500

8. Granny swears that she is getting younger. She has calculated that she is four times as old as I am now, but remembers that 5 years ago she was five times as old as I was at that time.

What is the sum of our ages now?

- A 95 B 100 C 105 D 110 E 115

9. What is the value of ♡ if each row and each column has the total given?

	♡	☀	♪	Total
	♪	♡	♡	12
	☀	☀	♪	11
Total	12	11	13	

- A 3 B 4 C 5 D 6 E more information needed

10. The three angles of a triangle are $(x+10)^\circ$, $(2x-40)^\circ$, $(3x-90)^\circ$. Which statement about the triangle is correct? 'The triangle is . . .

- A right-angled isosceles B right-angled, but not isosceles C equilateral
 D obtuse-angled and isosceles E none of A-D

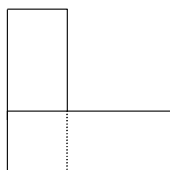
11. Despite his name, Mr. Bean likes to eat lots of fruit. He finds that four apples and two oranges cost £1.54 and that two oranges and four bananas cost £ 1.70.

How much would he have to pay if he bought one apple, one orange and one banana?

- A 77p B 78p C 79p D 80p E 81p

12. Two identical rectangular cards are glued together as shown to form an 'L' shape. The perimeter of this 'L' shape is 40 cm.

What is the ratio of the lengths of the sides of one of the original cards?



- A 1:2 B 1:4 C 1:5 D 2:5 E more information required