

1. The Sevenoaks café charges £1.20 for a coffee and £0.80 for a tea.
How much would it cost to buy 4 coffees and 3 teas in total?

$$4 \times \pounds 1.20 = \pounds 4.80 \quad \checkmark A1$$

$$3 \times \pounds 0.80 = \pounds 2.40 \quad \checkmark A1$$

$$\begin{array}{r} \pounds 4.80 \\ + \pounds 2.40 \\ \hline \pounds 7.20 \end{array}$$

Answer £ 7.20 ^{B3} [3]

2. A school has 937 students. In the next academic year, 315 new students join the school while 138 leave. How many students are now at the school?

Answer 1114 ^{B1} [1]

3.

- a) Round 813,451 to the nearest 1000

Answer 813,000 ^{B1} [1]

- b) Round 4.059 to 1 decimal place

Answer 4.1 ^{B1} [1]

- c) Round 0.0648 to the nearest hundredth

Answer 0.06 ^{B1} [1]

- d) A calculator automatically rounds its answers to two decimal places. After a calculation, it displays the result 325.28.

What is the largest value that the calculation could have produced on this calculator?

$$325.275 \leq x < 325.285$$

Answer 325.2849 ^{B1} [1]

(do not accept 325.285)

Accept
325.28499
or a string
of ≥ 2 nines

4.

a) Peggy claims that 1232 divides perfectly by 9. Is she right? You must show your working.

Either $1+2+3+2 = 8$, which is not divisible by 9, so no. \checkmark AI

or

$$9 \overline{) 1232} \begin{array}{r} 136 \cdot 88 \\ \underline{9} \\ 336 \\ \underline{27} \\ 608 \\ \underline{54} \\ 688 \\ \underline{63} \\ 588 \\ \underline{54} \\ 488 \\ \underline{45} \\ 388 \\ \underline{36} \\ 288 \\ \underline{27} \\ 188 \\ \underline{18} \\ 88 \\ \underline{81} \\ 78 \\ \underline{72} \\ 68 \\ \underline{63} \\ 58 \\ \underline{54} \\ 48 \\ \underline{45} \\ 38 \\ \underline{36} \\ 28 \\ \underline{27} \\ 18 \\ \underline{18} \\ 0 \end{array}$$

\checkmark M1, so no \checkmark AI
or "remainder 8", so no \checkmark AI

Answer _____ [2]

b) Jenny claims instead that 12345678987654321 is divisible by 9. Explain how she knows this without needing to perform the division.

she can add the digits \checkmark AI. If they sum to a multiple of 9 then the number is divisible by 9. \checkmark AI (0e sentences)

[2]

5. Use the fact that $28 \times 16 = 448$ to work out the following:

a) $448 \div 28 =$

Answer 16 \checkmark B1 [1]

b) $1.6 \times 2.8 =$

Answer 4.48 \checkmark B1 [1]

c) $44.8 \div 16 =$

Answer 2.8 \checkmark B1 [1]

d) $0.28 \times 1600 =$

Answer 448 \checkmark B1 [1]

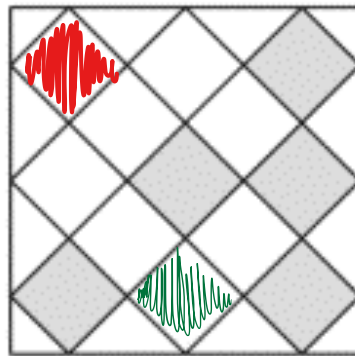
6. Aran is taking a train from Sevenoaks to Canterbury. This involves a 47-minute train to Ashford, followed by a 22-minute wait, followed by a 14-minute train to Canterbury. If his train leaves Sevenoaks at 10:43, what time will he arrive in Canterbury?

Method 1
 Sevenoaks: 1043
 Ashford: 1130
 Ashford: 1152
 Canterbury: 1208 ✓ B2

✓ A1 for sight of 1130 or 1152

Method 2
 $47 + 22 + 14 = 83 \text{ mins}$
 or
 $1 \text{ hr } 23 \text{ mins}$ ✓ A1
 so ... 1208 ✓ B2
 Answer _____ [2]

7. Shade in one square so the pattern below has exactly one line of symmetry:



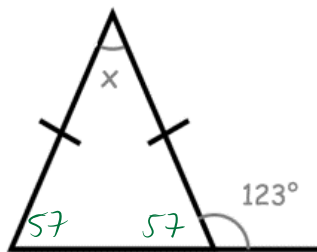
✓ B1 either red or green shaded.
 [1]

8. Lorenzo scores 26 out of 40 in an exam. The pass mark set is 70%. Did Lorenzo pass? You must show all your working.

$$\frac{26}{40} = \frac{13}{20} = \frac{65}{100} = 65\% \checkmark A1 \text{ (whatever method)}$$

Answer No ✓ A1 (since 65% < 70%) [2]

9. a) Find the size of the angle marked x:



✓ A1 for sight of 57°

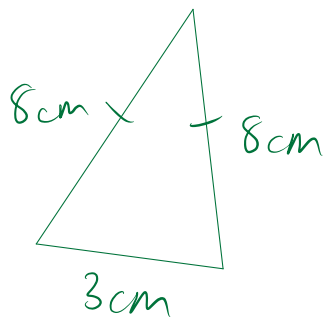
$$180 - (2 \times 57) \quad \checkmark \text{ M1}$$

Answer 66 ✓ B3 ° [3]

b) A triangle is formed with two different side lengths, 8cm and 3cm.

Yiannis says there are two possible triangles that can be formed. Is he correct? You need to justify your answer via sketches or a sentence.

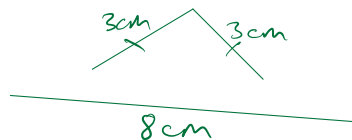
(A)



this can exist!

✓ A1 for sketch or sentence justifying that this triangle can exist.

(B)



This can't exist as the sum of the shorter sides is less than the longer side.

✓ A1 for sketch or sentence justifying that this triangle can't exist. [2]

10. Evaluate, leaving your answer as a mixed fraction in its simplest form:

$$3\frac{3}{4} + 5\frac{1}{3} - 0.5^2$$

$$\frac{15}{4} + \frac{16}{3} - \left(\frac{1}{2}\right)^2$$

$$\frac{15}{4} + \frac{16}{3} - \frac{1}{4}$$

✓ A1 for sight of $\frac{1}{4}$ or 0.25

$$= \frac{106}{12}$$

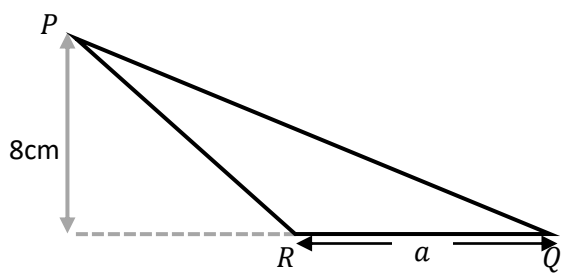
$$= \frac{53}{6}$$

$$\frac{45}{12} + \frac{64}{12} - \frac{3}{12}$$

✓ A1 for use of a common denominator or converting all to decimals

Answer 8 $\frac{5}{6}$ ✓ B3 [3]

11. The area of triangle PQR below is 56 cm^2 . Find a :



$$\frac{1}{2} \times a \times 8 = 56$$

$$4a = 56$$

✓ M1 for reversing area of triangle formula

Answer 14 ✓ B2 cm [2]

12. Place the following quantities in ascending order:

5.5% , $\frac{1}{20}$, 0.056 , $\frac{1}{10}$, 0.55
 \swarrow \swarrow \swarrow \swarrow \swarrow
 0.055 0.050 0.056 0.100 0.550
₂ ₁ ₃ ₄ ₅

✓ M1 for attempt to convert to same form

✓ A1 for ordering or numbers correctly in that form

must be in original form

Answer $\frac{1}{20}, 5.5\%, 0.056, \frac{1}{10}, 0.55$ ✓ B3 [3]

13. Evaluate and simplify where appropriate:

a) $3^2 - 4 \times 5$

$$9 - 20 = -11$$

Answer -11 ✓ B1 [1]

b) $\frac{(5+7) - \sqrt{16} \times 2}{8}$

$$\frac{12 - 4 \times 2}{8}$$

$$\frac{12 - 8}{8} = \frac{4}{8} = \frac{1}{2}$$

✓ A1 for 4 on numerator

✓ A1 for sight of 12 or 4

Answer $\frac{1}{2}$ ✓ B3 [3]
oe

14. Jenny is doing an exercise on fractions. She completes the first two questions below and notices that her answer to B is larger than her answer for A. What is the difference between her two answers?

A. $\frac{3}{7} \times \frac{28}{9} = \frac{4}{3}$ ✓ A1
oe

B. $2\frac{1}{4} \div \frac{3}{2}$

$\frac{9}{4} \div \frac{3}{2}$

✓ m1 for appropriate method to divide fractions and/or sight of $\frac{9}{4}$

$\frac{9}{4} \times \frac{2}{3}$

$= \frac{3}{2} \times \frac{1}{1} = \frac{3}{2}$ ✓ A1
oe

$$\frac{3}{2} - \frac{4}{3}$$

$$\frac{9}{6} - \frac{8}{6}$$

$$= \frac{1}{6}$$

Answer $\frac{1}{6}$ ✓ B4
oe [4]

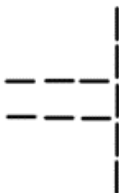
15. The patterns below are made from sticks:



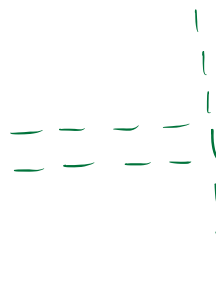
Pattern 1



Pattern 2



Pattern 3



Pattern 4

a) In the box, draw Pattern 4.

✓ A1 correct horizontally

✓ A1 correct vertically

[2]

b) How many sticks will appear in the twelfth pattern?

3, 7, 11, 15, ... ✓ A1 for expressing sequence numerically

✓ B2 any method
47

Answer 47 [2]

16. Shown below are 5 cards which are arranged in ascending order:



The range of the cards is 6. \therefore biggest = 11 ✓ A1 for sight of 11

The median of the cards is 7. ✓ A1 for sight of 7

The mean of the cards is 8.

Find the four missing numbers.

✓ M1
for any step which demonstrates understanding of mean

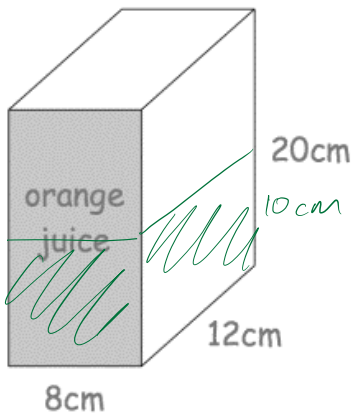
$$\begin{aligned} 5 + a + 7 + b + 11 &= 8 \times 5 \\ \hline a + b + 23 &= 40 \\ a + b &= 17 \end{aligned}$$

Option 1: 5, 7, 7, 10, 11 ✓ B4
Option 2: 5, 6, 7, 11, 11 for either

Answer _____ [4]

17. A carton of orange juice (shown below) is cuboid shaped. The depth of orange juice is normally 10 cm.

The carton is turned so that it stands on the shaded face. Work out the depth of the orange juice now.



Volume of orange juice
 $8 \times 12 \times 10 = 960 \text{ cm}^3$
 ✓ A1

When tipped on side:

$$\begin{aligned} 8 \times 20 \times x &= 960 \quad \checkmark \text{ M1 for an equation} \\ 160x &= 960 \quad \text{equaling} \\ x &= 6 \quad 960 \end{aligned}$$

Answer 6cm ✓ B3 [3]

18. Sevenoaks School has an election for its school council. There are four candidates: Tom, Sheila, Alex and Elise. 540 students voted in the election.

5% of the votes were for Tom.

Sheila received $\frac{2}{9}$ of the votes.

The ratio of the number of votes for Alex and for Elise was 2:1.

How many votes did the winner receive?

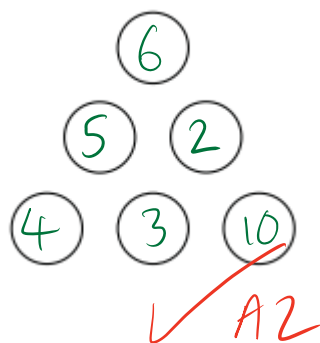
$$\begin{array}{ccccccc}
 \underline{T} & : & \underline{S} & : & \underline{A} & = & \underline{E} \\
 27 & & 120 & & 2x & = & x \\
 \checkmark A1 & & \checkmark A1 & & & & \\
 & & & & 3x = 393 & & \\
 & & & & x = 131 & & \\
 A = 262 & , & E = 131 & & & &
 \end{array}$$

✓ M1 for evidence of splitting rest into 3

Answer 262 ✓ B4 [4]

19. Zelda wants to put the numbers 2, 3, 4, 5, 6 and 10 into the circles so that the products of the three numbers along each edge are the same, and as large as possible.

What is this product?



multiple possibilities for method marks

✓ M1 for prime factorisation

✓ M1 for all products making 60 or 120

✓ M1 for 3 and 6 on different edges

✓ M1 for 5 and 10 on different edges

✓ A3 if backed up with numbers

Answer 120 [3]