1. Find the value of:

(a) 3468 + 4283

Answer……*[1 mark]*

(b) 5678 – 3284

Answer……*[1 mark]*

(c) $2\frac{3}{5} + 1\frac{1}{2}$

Answer……*[1 mark]*

2.

(a) What is the 10^{th} odd number?

Answer……*[1 mark]*

(b) What is the 4^{th} square number?

Answer……*[1 mark]*

---

3. What is the largest number that goes exactly into 90, 210, 300?

Answer…….……*[1 mark]*

---

4. Write down these numbers in order of size.

Start with the smallest number first.

0.04 0.204 0.40 0.042 0.24

Answer…….……*[1 mark]*

---

5. The temperatures, in degrees Centigrade, taken at 10 am in several countries were:

5, –2, 14, 2, 4, –6, 7

(a) Write these in order from the coldest to the hottest.

Answer…….…….…… *[1 mark]*

(b) What was the difference between the hottest and the coldest temperatures?

Answer…….……^{0}C *[1 mark]*

(c) The lowest temperature was measured incorrectly. It should have been 7 degrees less. Write this new lowest temperature.

Answer…….……^{0}C *[1 mark]*

---

6. Write the next two terms in each of the following sequences:

(a) 5, 12, 19, 26, ……, ……..

[1 mark]

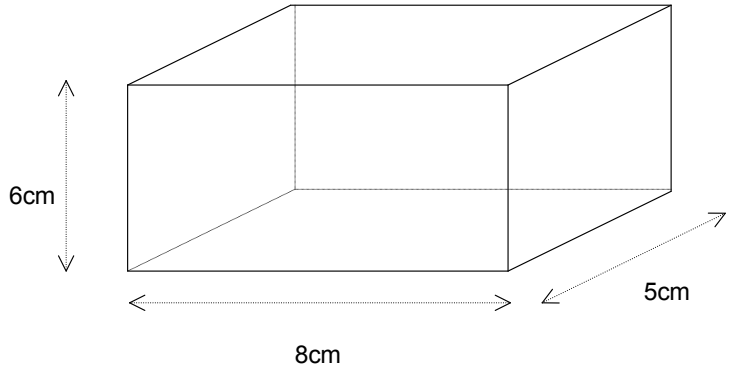
(b) 11, 8, 5, 2, ……., …….

[1 mark]

(c) 2, 6, 18, 54, ……., …….

[1 mark]

7. The diagram below (not to scale) shows a cuboid.



(a) What is the total surface area of all 6 sides?

Answer……cm ^{2} *[1 mark]*

(b) If the area of the front face doubles but the 8cm width does not change what must the new height be?

Answer……cm *[1 mark]*

---

8. The distance between Richmond and Kingston is approximately $3\frac{3}{8}$ miles.

If I walk $\frac{2}{3}$ of the way, how far do I walk?

Answer……miles *[1 mark]*

---

9. Three bicycles are priced at £79, £80 and £84. If the shopkeeper decided to sell them for the same total amount, but made the three prices equal, what would each cost?

Answer £……*[1 mark]*

---

10. A boy was asked to take 3.51 away from 7.9, but by mistake he took away 3.15 instead. By how much is he wrong?

Answer……*[1 mark]*

---

11. A car hire firm charges £35 per day plus 34p per km travelled. A man hired a car for 4 days and travelled 300km. How much did he pay?

Answer £……*[1 mark]*

---

12. An example of an 'even' or '50 - 50' chance is the probability of throwing a fair coin and getting a head.

Which of the following situations represent an 'even' chance ?

Circle the correct answer

(a) you put your socks on the correct feet — EVEN / NOT EVEN

(b) You obtain a 2 when rolling a fair six sided dice — EVEN / NOT EVEN

(c) you get an even number when rolling a 10 sided dice — EVEN / NOT EVEN

(d) you get a prime number when rolling a six sided dice — EVEN / NOT EVEN

[4 marks]

---

13. The following table shows the golf scores that John obtained in 5 matches. With two unknown scores X and Y.

Score	65	X	70	74	Y

If the modal score is 70 and the mean score is 72 find X and Y.

Answer X =……*[1 mark]*

Answer Y =……*[1 mark]*

---

14. Replace the question marks with either a +, −, x or ÷ and make the calculation correct (rewrite the whole sum correctly):

(a) 4 ? 3 ? 2 = 14

Answer……..…….……*[1 mark]*

(b) (3 ? 5) ? (4 ? 2) = 4

Answer……..…..……*[1 mark]*

---

15. On 1st January 2006 my grandmother was 80 years old. Her daughter was 40 years old on 1st January 1994. How old was my grandmother when her daughter was born?

Answer……..……*[1 mark]*

16.

(a) Sam thinks of a number, multiplies it by 2 and then adds 11. The answer he gets is 29. What number did he think of?

Answer……*[1 mark]*

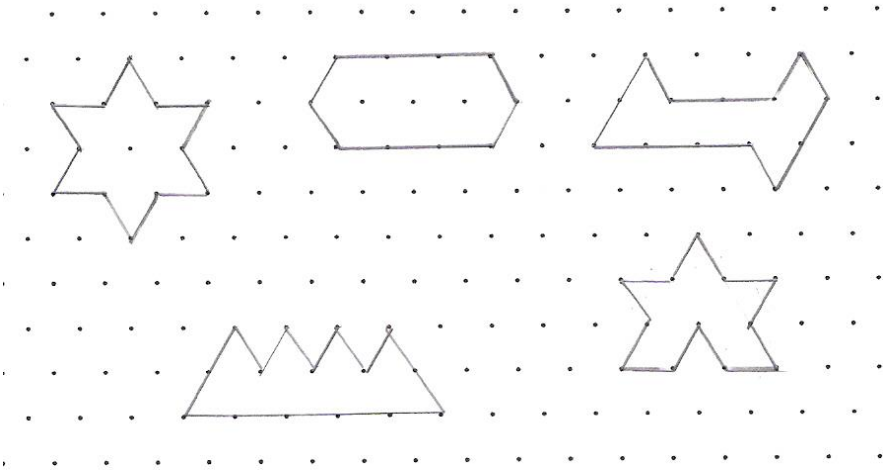
(b) Julia thinks of a number, multiplies it by 5, adds 11 and then divides it by 2. She gets the answer 28. What number did she think of?

Answer……*[1 mark]*

(c) Sam and Julia find there is one number for which, if they both start from that number and follow their own rules, they get the same answer. What is the number they both start with?

Answer……*[1 mark]*

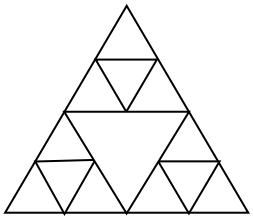
17.



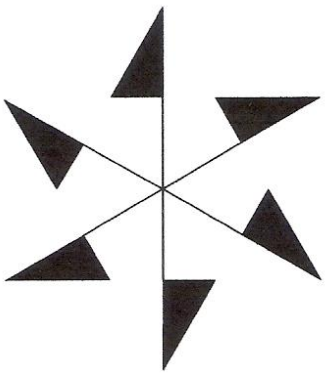
(a) Put a cross in the shape with the largest perimeter
(b) Put a ring around the shape with the smallest area.

[2 marks]

18.



(i)



(ii)

(a) How many lines of symmetry does shape (i) have?

Answer……*[1 mark]*

(b) What is the order of rotational symmetry for shape (ii)?

Answer……*[1 mark]*

---

19. A lady has some dogs and some kennels for them to sleep in.

If she puts 3 dogs in each kennel, there are 2 dogs left over.
If she puts 4 dogs in each kennel, 1 kennel is left empty.

(a) How many dogs are there ?

Answer ……*[1 mark]*

(b) How many kennels are there?

Answer……*[1 mark]*

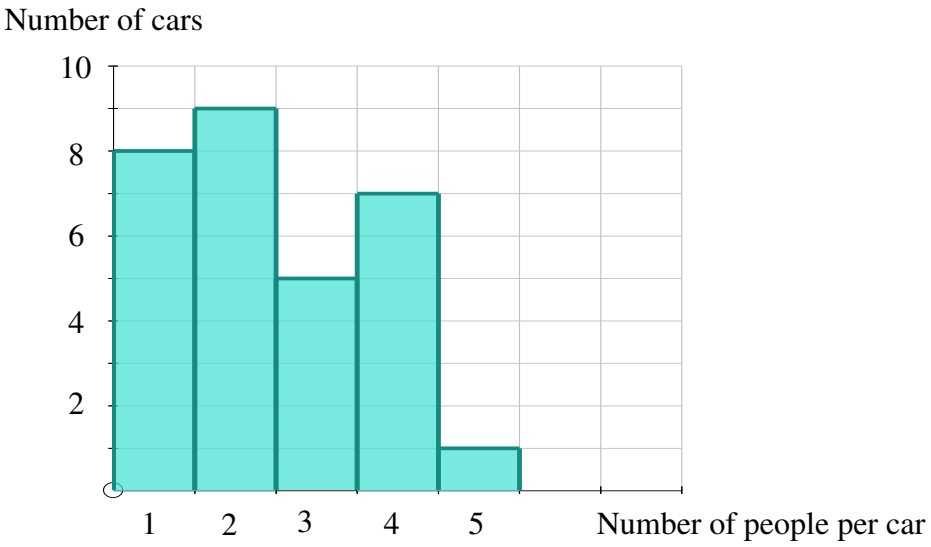
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20. How many different 3 digit numbers can you make from the digits 1, 1 and 3. You can use each digit as many times as you like.

Answer……*[1 mark]*

---

21. One afternoon Phil stood outside school counting the number of people in each passing car. The bar chart shows the results.



(a) How many cars contained 2 people ?

Answer……cars *[1 mark]*

(b) How many cars passed by altogether ?

Answer……cars *[1 mark]*

(c) The next 2 cars to pass each contained 6 people. Add this information to the bar chart.

[1 mark]

(d) What was the total number of people counted throughout the afternoon?

Answer……people *[1 mark]*

22. Ψ is a new mathematical rule which works like this:

To work out $2 \Psi 4$ add 1 to 2, then multiply by 4, like this:

$2 + 1 = 3$
$3 \times 4 = 12$
So $2 \Psi 4 = 12$

Similarly $4 \Psi 7 = 35$ because $4 + 1 = 5$, then $5 \times 7 = 35$

(a) Work out $3 \Psi 8$

Answer……*[1 mark]*

(b) Work out $5 \Psi 9$

Answer……*[1 mark]*

(c) If $2 \Psi y = 18$, what number does y stand for ?

Answer……*[1 mark]*

(d) If $z \Psi 4 = 36$, what number does z stand for ?

Answer……*[1 mark]*

(e) If $p \Psi q = 20$, find all the pairs of whole numbers that p and q could be.

Answer……*[3 marks]*

23. Plot the following points on the diagram below and join them to form a shape:

A(2 , 1), B(–4 , 3) and C(0 , 5)

[2 marks]

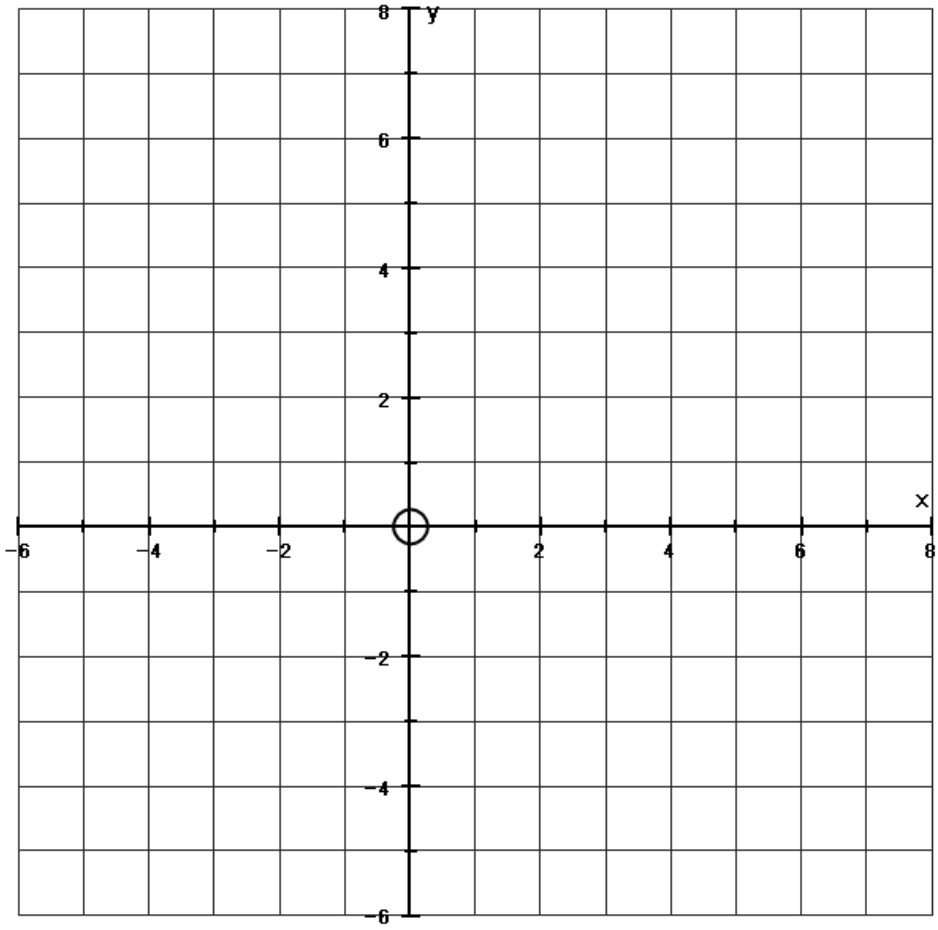
Describe fully the shape ABC.

Answer……[2 marks]

Add an additional point to the diagram so that you form a parallelogram ABCD.

Write down the co-ordinate point you have drawn. (___ , ___)

[1 mark]



24.



3.5g 7g 5g 13.4g

1 pence 2 pence 20 pence 50 pence

In order to save time banks weigh bags of coins instead of counting them. The masses in grams of some coins are shown above.

(a) If a bag of 2 pence coins weighs 350g, how many coins are there?

Answer……*[1 mark]*

(b) How much are 500g of 20 pence coins worth ?

Answer £……*[1 mark]*

(c) How many grams would £10 worth of 50 pence coins weigh ?

Answer……g *[1 mark]*

(d) A bag contains a mixture of 2 pence and 1 pence coins. It is worth £2. What does it weigh?

Answer……g *[1 mark]*

25. On an Autumn day the number of leaves on a tree at the end of the day is half the number at the start of the day. A tree initially has 400,000 leaves.

(a) How many are left at the end of the second day?

Answer……*[1 mark]*

(b) At the end of which day are there less than 2,000 leaves?

Answer……*[1 mark]*

---

26. In this question leap years are ignored and today is TUESDAY. What day is it in:

(a) 8 days

Answer……*[1 mark]*

(b) 48 days

Answer……*[1 mark]*

(c) 49^2 days

Answer……*[1 mark]*

---

27. A perfect number is one in which all its factors (except the number itself) total to the number. For example 6 = 1 + 2 + 3 is a perfect number since the proper factors of 6 are 1, 2 and 3 and they total to 6. 12 is not a perfect number as its proper factors are 1, 2, 3, 4, 6 and they total 16.

(a) Find one other perfect number between 20 and 30.

Answer……*[1 mark]*

(b) State whether a prime number can ever be perfect.

Answer……*[1 mark]*

---

28. In a barn there are only horses and people. If there are 12 heads and 34 legs how many horses and how many people are there?

Horses……*[1 mark]*

People……*[1 mark]*

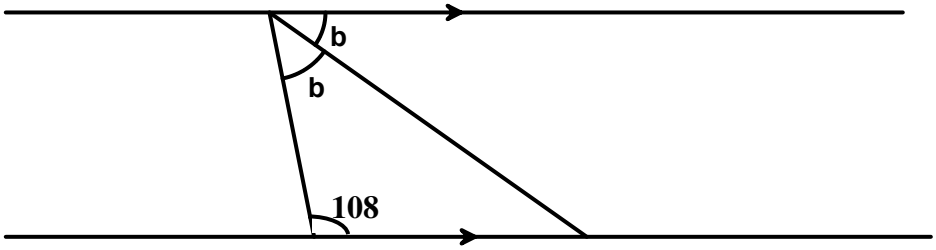
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29. How many 3cm cubes can be made by cutting up a block 12 cm by 24 cm by 18 cm?

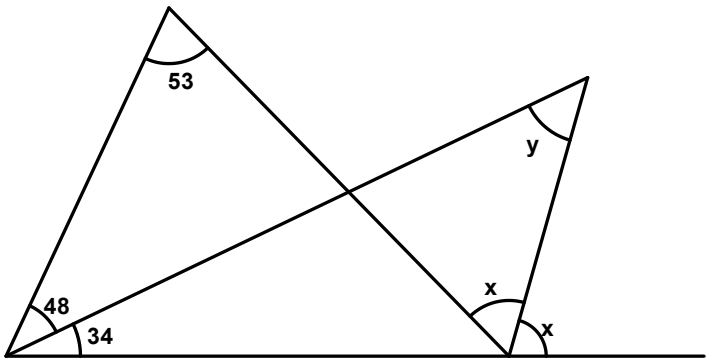
Answer……*[1 mark]*

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30. Find angles b, x and y in the following diagrams (not to scale):



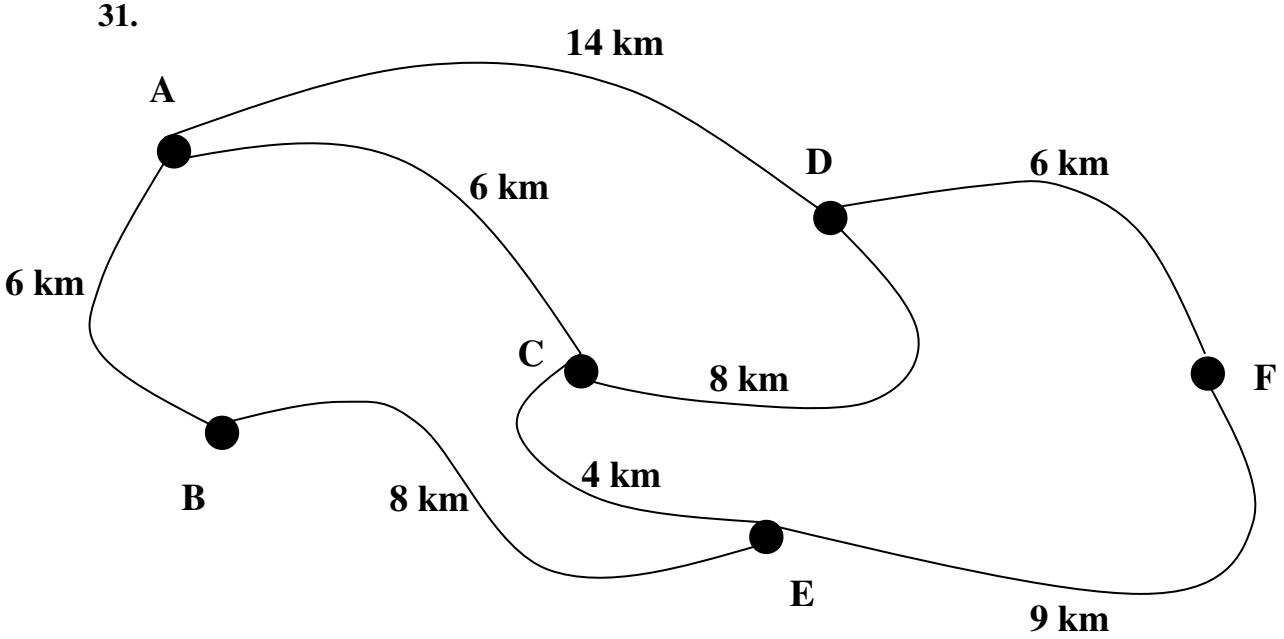
b = ……*[1 mark]*



x……*[1 mark]*

y……*[1 mark]*

31.



The above shows the routes and distances between villages. For example, route ABEC starts at A and finishes at C. It has length 6 + 8 + 4 = 18km

(a) What is the length of the shortest route from A to F?

Answer……km *[1 mark]*

(b) I want to visit A, B, C and D. In which order should I visit them if I can start at any of the four villages and wish to make my total journey as short as possible?

Answer……*[1 mark]*

(c) Starting from any village, I wish to visit all villages without travelling along any road more than once. What is the shortest distance I can travel?

Answer……*[1 mark]*

END OF EXAMINATION – NOW CHECK YOUR WORKING