---

1. Write the **value** of the underlined digit in the place value chart.

Hundred Thousands 100 000	Ten Thousand 10 000	Thousand 1 000	Hundred 100	Tens 10	Ones 1
6	**3**	8	1	9	7

The value of the underlined digit 3 is 3 × 10 000 = 30 000

Answer: 30 000

---

2. What is the largest **prime** number in the box below?

41	75	49
87	67	23

The prime numbers in the box are 23, 41 and 67. The largest of these is 67.

Answer: 67

---

3. Write $\dfrac{39}{5}$ as a mixed number.

5 fifths = 1 whole,

39 fifths = 39 ÷ 5 = 7 wholes and 4 fifths

So, 39 fifths will be equivalent to $7\dfrac{4}{5}$

Answer: $7\dfrac{4}{5}$

---

4. $36.48 \div 6 =$

	T	O	t	h
6	3	^{3}6	4	^{4}8
	0	6	0	8

Position of decimal point

Answer: 6.08

---

5. Write the missing numeral to make the number statement correct.

$$(14 \times 10) + (14 \times 7) = 14 \times \boxed{}$$

Method 1	*Method 2*
$14 \times 10 = 10 \ groups \ of \ 14$	$14 \times 10 = 140 \ +$
$14 \times 7 = 7 \ groups \ of \ 14$	$14 \times 7 = \underline{\ 98}$
	238
$(14 \times 10) + (14 \times 7) = (10 + 7) \ groups \ of \ 14$	$238 = 14 \times \boxed{}$
$(14 \times 10) + (14 \times 7) = 17 \ groups \ of \ 14$	$\quad\quad 17$
$(14 \times 10) + (14 \times 7) = 14 \times 17$	$14 \overline{)238}$
	$\underline{140}$
	098
$\boxed{} = 17$	$\underline{098}$
	$\boxed{} = 17$

Answer: $\boxed{} = 17$

6. $\sqrt{121} + 9^2$

$\sqrt{121} = 11$ since $11 \times 11 = 121$ and $\quad 9^2 = 9 \times 9 = 81$

So $\sqrt{121} + 9^2 = 11 + 81 = 92$

$$
\begin{array}{r}
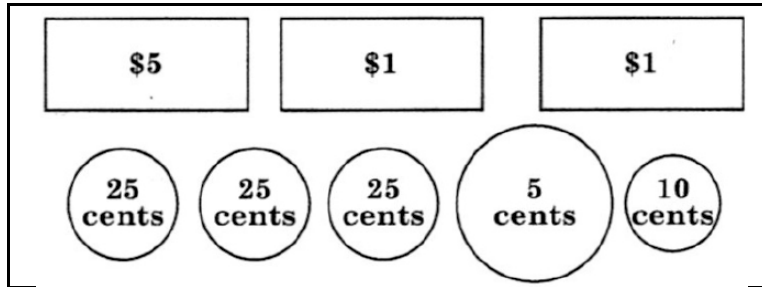\textbf{T O} \\
1\ 1 \\
+\ 8\ 1 \\
\hline
9\ 2
\end{array}
$$

Answer: 92

7. $5 - \dfrac{3}{4} =$

$5 - \dfrac{3}{4} = 4 + 1 - \dfrac{3}{4}$	$5 - \dfrac{3}{4} = \dfrac{5}{1} - \dfrac{3}{4}$
$= 4 + \dfrac{4}{4} - \dfrac{3}{4}$	$= \dfrac{4(5) - 1(3)}{4}$
$= 4 + \dfrac{1}{4}$	$= \dfrac{20 - 3}{4}$
$= 4\dfrac{1}{4}$	$= \dfrac{17}{4}$
	$= 4\dfrac{1}{4}$

Answer: $4\dfrac{1}{4}$

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8. Write the total value of the bills and coins.

$5	$1	$1

25 cents   25 cents   25 cents   5 cents   10 cents

Dollars	Cents
5	25
+1	+25
1	25
7	5
	10
	90

Total = $7 + 90 cents
Answer: $7.90

---

9. $312 \times 15 =$

```
      H T O
      3 1 2
  ×     1 5
  ─────────
      3 1 2 0      312× 10
    + 1 5 6 0      312× 5
  ─────────
      4 6 8 0
  ─────────
```

Answer: 4 680

---

10. Write the missing numbers in the boxes below.

$\begin{array}{cccc} & 4 & 3 & \square \\ + & 9 & \square & 7 \\ \hline 1 & 3 & 4 & 5 \end{array}$	To get 5 in the ones column the sum of the ones must end in 5 $\begin{array}{cccc} & 4 & 3 & \boxed{8} \\ + & 9 & \square & 7 \\ \hline 1 & 3 & 4 & 5 \end{array}$ Adding the ones: $7 + \square = 15$, $\square = 8$ Adding the tens: $\square + 3 + 1 = 4$, $\square = 0$

Answer:

$\begin{array}{cccc} & 4 & 3 & \boxed{8} \\ + & 9 & \boxed{0} & 7 \\ \hline 1 & 3 & 4 & 5 \end{array}$

11. What is the distance, in centimetres, between Point **P** and Point **Q**?

cm

14   15   16   17   18   19   20   21   22   23   24   25   26

P   Q
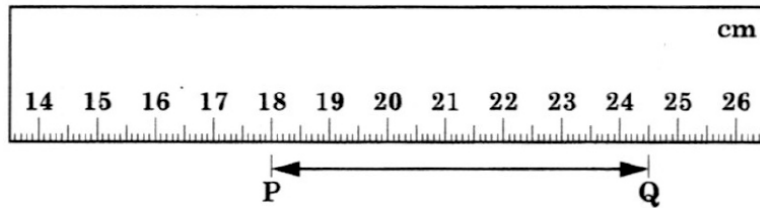
The distance of PQ = (24.5 – 18.0) cm

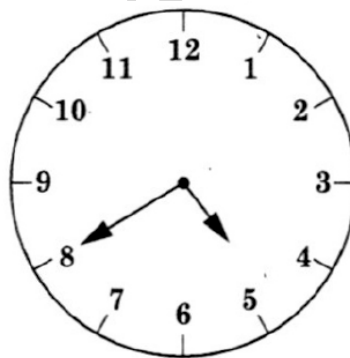| T	O	t
2	4	5
1	8	0
	6	5

Position of decimal point

Answer: 6.5 cm

12. Read the time shown on the analog clock. Write this time on the digital clock.

Analog clock

Digital clock

:

It is 20 minutes before 5 o'clock or 40 minutes after 4 o'clock.

It is 4:40.

Answer: | 4 : 40 |

13. The calendar below is torn. What would be the date of the 5th Friday?

November 2019						
Sun	Mon	Tues	Wed	Thurs	Fri	Sat
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16

Friday

1st	1
2nd	8
3rd	15
4th	$15 + 7 = 22$
5th	$22 + 7 = 29$

So the 5th Friday is November 29th.

Answer: The 5th Friday is November 29th

14. The solid below is made up of cubes of the same size.
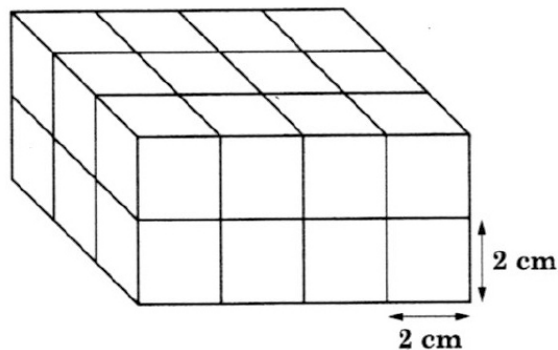
What is the total volume of the solid?

Length $= 4 \times 2 \text{ cm} = 8 \text{ cm}$
Width $= 3 \times 2 \text{ cm} = 6 \text{ cm}$
Height $= 2 \times 2 \text{ cm} = 4 \text{ cm}$

Volume $= 8 \times 6 \times 4$
$\qquad = 192 \text{ cm}^3$

Answer: 192 cm^3

15. On the diagram below, which two angles are **greater** than 90°?
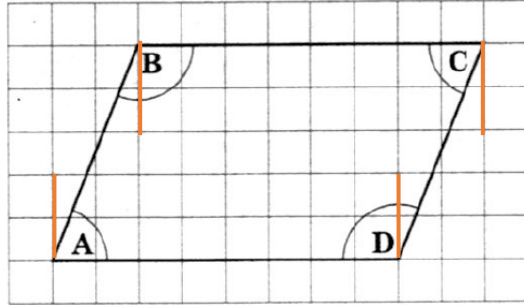
Using a quarter turn as a benchmark for comparison, we can deduce that:
Angle A is less than a quarter turn. Similarly, angle C is less a quarter turn.
Angle B is greater than a quarter turn. Similarly, angle D is greater than a quarter turn.
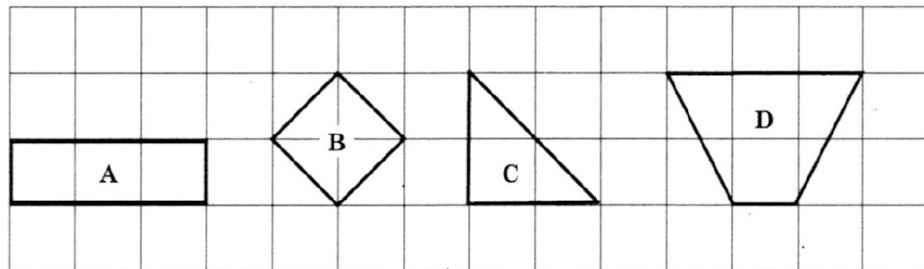
Answer: Angles B and D

16. Name one solid with a uniform cross-section.
A cube (or any other prism) has a uniform cross-section.

Answer: Cube

17. Which plane shape has **all** the properties described in the table.

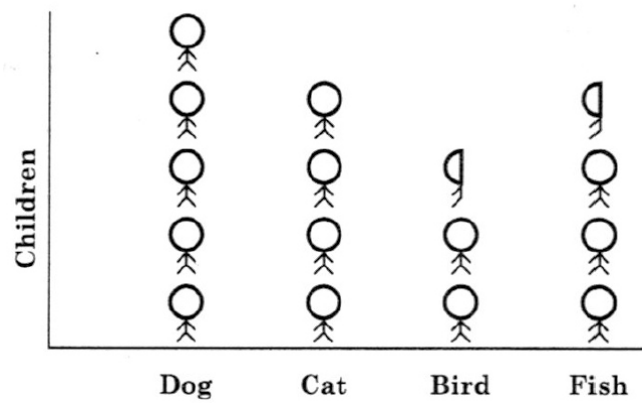| No. of pairs of Parallel Sides	No. of pairs of Equal Sides	No. of lines of Symmetry
1	1	1

A has 2 pairs of parallel sides. B has 2 pairs of parallel sides. C has no parallel sides.
D has 1 pair of parallel sides, 1 pair of equal sides and 1 line of symmetry.
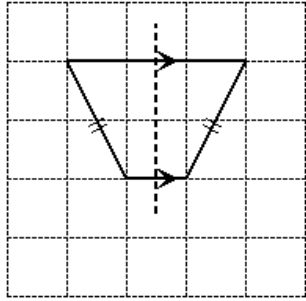
Answer: D

18. The pictograph below shows the pets owned by 90 children.

PETS OWNED

How many children does represent?

Total number of = 14

Total number of = 2 (which is equivalent to 1)

So total number of = 14 + 1 = 15

Therefore 15 represent 90 children.

Hence, one represents $\dfrac{90}{15} = 6$ children.

Answer: 6 children

19. The tally chart shows the favourite colours of some students.

Colour	No. of Students
Red	� 8 (5+3)
Blue	5+3
Yellow	5+5+2
Green	3

What colour represents the mode?

The mode will be yellow since it is chosen by the most students.

Answer: Yellow

---

20. The table below shows the number of ice-cream cones sold for **three** days.

Day	No. of Ice-cream Cones Sold
Monday	25
Tuesday	18
Wednesday	35

Calculate the mean number of ice-cream cones sold.

Mean no. of ice-cream cones sold $= \dfrac{\text{Total no. of ice-cream cones sold over three days}}{\text{No. of days}}$

$$= \frac{25 + 18 + 35}{3}$$

$$= \frac{78}{3}$$

$$= 26$$

Answer: 26 ice-cream cones

21. Eighteen identical tables fit exactly along the length of a hall. Each table measures 2.5 m in length.

What is the **total** length of the hall?

Total length of the hall $= \text{Length of 1 table} \times \text{Number of tables}$

$$= 2.5 \times 18 \qquad\qquad 2.5 \times 18 = \frac{5}{2} \times 18 = 5 \times 9 = 45$$

$$= 45$$

Answer: 45 m

---

22. John has to do a book report on a book that contains 375 pages. He has finished reading 225 pages of the book. What percent of the book does he still have to read?

No. of pages in the book $= 375$
No. of pages read $= 225$
No. of pages still to be read $= 375 - 225$

```
H T O
3 7 5
− 2 2 5
1 5 0
```

$$= 150 \text{ pages}$$

Percent of book still to be read $= \dfrac{\text{No. of pages still to be read}}{\text{No. of pages in the book}} \times 100$

$$= \frac{150}{375} \times 100$$

$$= 40\%$$

Alternatively:

Percent of book read $= \dfrac{225}{375} \times 100$

$$= 60\%$$

Percent of book still to be read $= 100\% - 60\%$

$$= 40\%$$

Answer: 40%

23. Darren filled boxes with tins of orange juice and numbered the boxes in the order in which they were filled. He packed the 496th tin in Box 21 then stopped for lunch. Box 21 was not completely filled.
How many tins were in Box 21?

20 boxes were filled. **Assume that each box had the same number of tins**. Then to determine the number of tins in each of the filled 20 boxes we divide $496 \div 20$.

```
        H  T  O
           2  4
  20  | 4  9  6
        4  0  0    20× 20
           9  6
           8  0    20× 4
           1  6
```

So, 20 boxes were packed with 24 tins each and 16 remained.
Hence the 21st box was packed with 16 tins before Darren went for lunch.

Answer: 16 tins

24. Sita has 36 marbles. She has $\frac{3}{7}$ the number of marbles that Diana has. How many marbles do they have **altogether**?

We do not know Diana's share but we know the value of $\frac{3}{7}$ of Diana's share, so we represent Diana's share as a whole, divided into 7 parts.

$\frac{1}{7}$	$\frac{1}{7}$	$\frac{1}{7}$	$\frac{1}{7}$	$\frac{1}{7}$	$\frac{1}{7}$	$\frac{1}{7}$
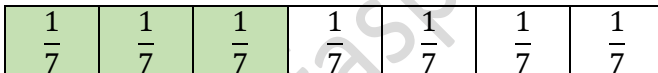
Shade $\frac{3}{7}$ to represent Diana's share

12	12	12

Sita's share of 36 is equal to 3 parts of Diana's share.
So, we divide her share into 3 equal parts, each part is 12.
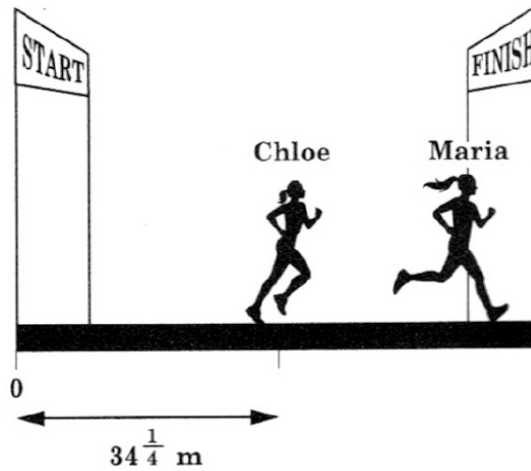
$\frac{3}{7}$ of Diana's share $= 36$

$\frac{1}{7}$ of Diana's share $= 36 \div 3 = 12$

$\frac{7}{7}$ of Diana's share $= 12 \times 7 = 84$

Number of marbles they have altogether $= 36 + 84 = 120$

Answer: 120 marbles

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25. The diagram below shows Maria and Chloe in a race. Maria is at the finish line. Chloe is $15\frac{3}{4}$ metres behind Maria.

What is the total distance from the start to the finish line?

Distance from start to finish $= 34\frac{1}{4} + 15\frac{3}{4}$ m

$$= \underbrace{34 + 15}_{} + \underbrace{\frac{1}{4} + \frac{3}{4}}_{}$$

$$= 49 + 1$$
$$= 50 \text{ m}$$

Answer: 50 m

26. The prices of three different items are shown below.

Notebook	Folder	Pen
$8.00	$30.00	$5.00

Erin bought the items shown in the table below. Complete the table.

Item	Quantity	Total Cost
Notebook	_____	_____
Folder	2	_____
Pen	3	$15.00
TOTAL		$99.00

First, find the total cost of the 2 folders:
2 folders at $30 cost $30 \times 2 = \$60$
Cost of 2 folders and 3 pens = $60 + $15
$$= \$75$$

He spent $99 in all and $75 was spent on folders and pens.
Hence, the money spent on notebooks only $= \$99 - \$75 = \$24$
But one notebook costs $8.00.
So, the number of notebooks bought $= \dfrac{\$24}{\$8}$
$$= 3$$

Answer:

Item	Quantity	Total Cost
Notebook	3	$24.00
Folder	2	$60.00
Pen	3	$15.00
TOTAL		$99.00

27. Mr. Lee gave the following question to his class.

$0.8 + 0.2 = \boxed{}$

Kate wrote $0.8 + 0.2 = \boxed{0.1}$

Priya wrote $0.8 + 0.2 = \boxed{1.0}$

Whose answer is correct? Use words or diagrams to explain your answer.

$$\begin{array}{r} 0\ .\ 8 \\ +0\ .\ 2 \\ \hline 1\ .\ 0 \\ \hline \end{array}$$

Alternatively, we could convert the decimals to fractions,

0.8 is $\dfrac{8}{10}$.

0.2 is $\dfrac{2}{10}$.

So $0.8 + 0.2 = \dfrac{8}{10} + \dfrac{2}{10}$

$= \dfrac{8+2}{10}$

$= \dfrac{10}{10}$ which is a whole or 1.0

So, Priya is correct.

Kate's answer is incorrect because when we add two numbers the result is always larger than any one of the numbers. Kate's answer, 0.1 is smaller than 0.8 and also smaller than 0.2.

Kate may have mistakenly read the question to be $0.08 + 0.02$, which is $\dfrac{8}{100} + \dfrac{2}{100} = \dfrac{10}{100} = \dfrac{1}{10}$ or 0.1.

Answer:

Therefore, Priya's answer is correct but Kate is incorrect.

28. Can two fractions with the same numerators and different denominators be equal?

Use words or diagrams to explain your answer. You may use $\dfrac{1}{4}$ and $\dfrac{1}{8}$ as examples.

$\dfrac{\text{Numerator}}{\text{Denominator}}$ $\to$ Tells us how many of the parts we are considering
$\to$ Tells us how many parts the whole is divided into

So, $\dfrac{1}{4}$ means we are looking at one part of a whole divided into 4 parts.

$\dfrac{1}{8}$ means we are looking at one part of a whole divided into 8 parts.

$\dfrac{1}{4}$ Family Name is fourths

$\dfrac{1}{8}$ Family Name is eighths

The diagrams show that $\dfrac{1}{4}$ is not equal to $\dfrac{1}{8}$, but it is equivalent to $\dfrac{2}{8}$.

In general, if two fractions have the same number of parts (same numerators) but the family names are different (different denominators), then the fractions will not be the same.

Answer: So, if the numerators are the same and denominators are different, the fractions are not the same.

---

29. At a school, 55% of the students are boys. All of the boys and 40% of the girls participated in the school's concert.

What percentage of the students participated in the school's concert?

Percent of boys in school $= 55\%$
So, the percent of girls in school $= (100 - 55)\% = 45\%$

40% of the girls $= \dfrac{40}{100} \times 45\% = 18\%$

So, the percent of class that participated in the concert is 55% + 18% = 73%

We could have solved this problem by drawing a diagram. The percent of boys and girls in the class is shown in the first diagram.

Boys = 55%	Girls = 45%

The fraction of the class who participated in the concert is shown in the shaded region below. All of the boys (55%) and 40% of the girls (or two fifths of the girls). We divide the 45% region into five equal parts and shade two parts.

55%	9%	9%	9%	9%	9%
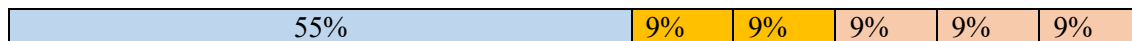
Percent of class that participated in the concert is 55% + 18% = 73%

Answer: 73%

30. A farmer sold avocados over a period of 6 days. The number of avocados sold each day follows a pattern as shown in the table below. The number of avocados sold on Day 5 and Day 6 is **not** shown.

Day	1	2	3	4	5	6
Number of avocados sold	60	66	73	81		

How many avocados were sold altogether for the 6 days?

The number of avocados sold appears to be increasing by 1 more than the difference from the previous day.

$60 + 6 = 66$

$66 + 7 = 73$

$73 + 8 = 81$

So, we would expect $81 + 9$ to be sold on Day 5 which is 90.

And 90 + 10 to be sold on Day 6 which is 100.

Total number of avocados sold $= 60 + 66 + 73 + 81 + 90 + 100$
$= 470$

Answer: 470 avocados

31. What is the area of the shaded figure below?
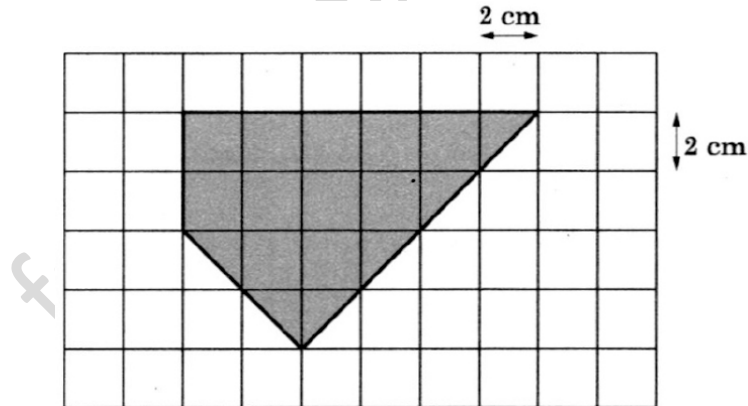
The area of each square is $2 \times 2 = 4 \text{ cm}^2$

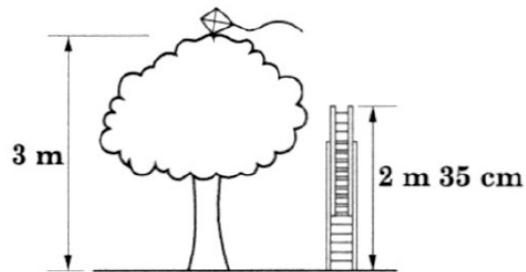The area of each triangle is $\frac{1}{2}(4) = 2 \text{ cm}^2$

There are 11 squares with an area of $11 \times 4 = 44 \text{ cm}^2$

There are 6 triangles with an area of $6 \times 2 = 12 \text{ cm}^2$

Total area $= 44 + 12$
$= 56 \text{ cm}^2$

Answer: 56 cm^2

32. The diagram below shows a tree, a kite and ladder.

By how much should the ladder be extended to reach the kite at the top of the tree?

Height of tree $= 3$ m

Height of the ladder on the tree at the present position $= 2$ m 35 cm
So the ladder must be extended by

$$
\begin{array}{cc}
\text{m} & \text{cm} \\
\cancel{3}^{\,2} & 0^{+100} \\
- \quad 2 & 35 \\
\hline
& 65 \\
\end{array}
$$

**Answer:** The ladder needs to be extended by 65 cm.

Note that if the ladder is extended vertically it will reach the same level of the kite, not the kite – in other words the question meant
"by how much should the ladder be extended so that it is the same height as that of the kite".

33. Mr. Deo wants to tile the floor using square tiles 20 cm in length.
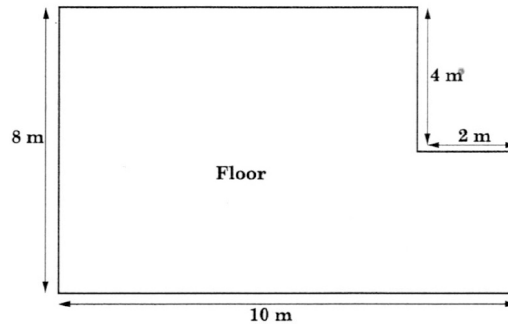
How many tiles will he need to cover the floor?
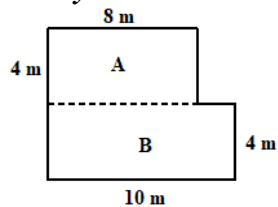
We can find the area of the floor by
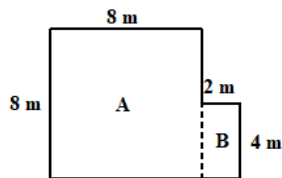
Area of A = (8×8) m^2
     $= 64$ m^2
Area of B = (2×4) m^2
     $= 8$ m^2
Area of the floor = $(64 + 8)$ m^2
          $= 72$ m^2

Alternatively:

Area of A = (8×4) m^2
     $= 32$ m^2
Area of B = (10×4) m^2
     $= 40$ m^2
Area of the floor = $(32 + 40)$ m^2
          $= 72$ m^2

Alternatively:
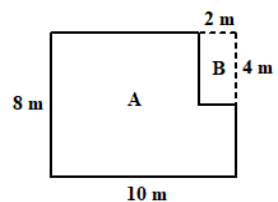
Area of A+B = (10×8) m^2
       $= 80$ m^2
Area of B = (4×2) m^2
     $= 8$ m^2
Area of the floor = $(80 - 8)$ m^2
          $= 72$ m^2

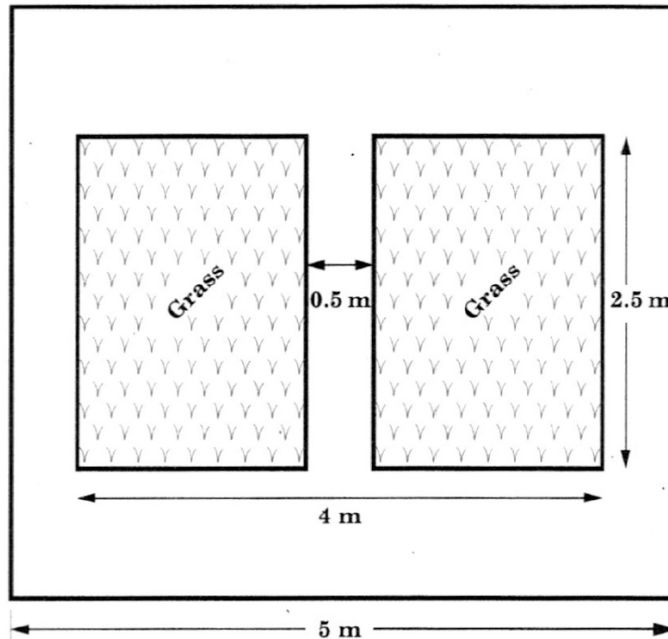Area of floor = 72 m^2 = $(72 \times 100 \times 100)$ cm^2 [1 square metre = (100×100) cm^2]
Area of 1 tile = (20×20) cm^2

$$\text{No. of tiles to be used} = \frac{\text{Area of the floor}}{\text{Area of 1 tile}}$$

$$= \frac{72 \times 100 \times 100}{20 \times 20} = \frac{720\,000}{400}$$

Answer: 1 800 tiles

34. The drawing below is a square yard of side 5 metres. The yard is paved except for two rectangular patches of grass. The two patches of grass are identical.

What is the **total** area of the paved section of the yard?

Area of the two patches of grass $= 2.5 \text{ m} \times (4 - 0.5) \text{ m}$

$= 2.5 \times 3.5 \text{ m}^2$

$= 8.75 \text{ m}^2$

Convert decimals to fractions

$\frac{5}{2} \times \frac{7}{2} = \frac{35}{4} = 8\frac{3}{4} = 8.75$

Alternatively, the area of the grass could have been found by the following method:

Length = 2.5 m   Width $= \frac{1}{2}(4 - 0.5) = 1.75$

Area of one patch of grass = $(2.5 \times 1.75) \text{ m}^2$

Area of two patches of grass = $(2 \times 2.5 \times 1.75) \text{ m}^2$

$= (5 \times 1.75) \text{ m}^2$

$= 8.75 \text{ m}^2$

Convert decimals to fractions
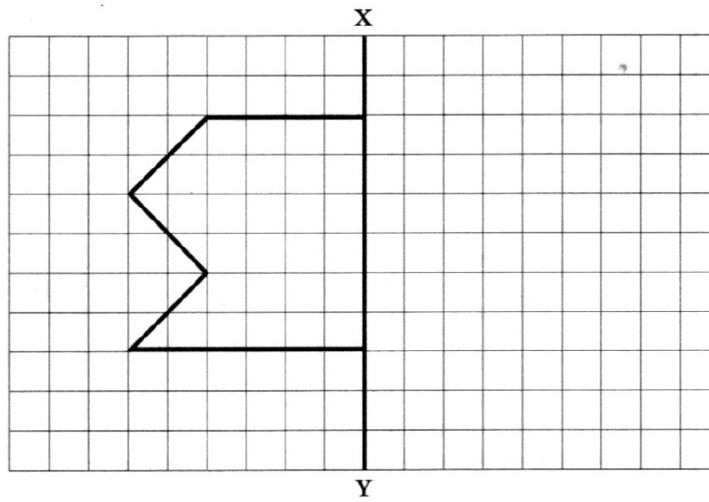
$\frac{5}{1} \times \frac{7}{4} = \frac{35}{4} = 8\frac{3}{4} = 8.75$

Area of the square yard $= 5 \text{ m} \times 5 \text{ m}$

$= 25 \text{ m}^2$

So, the area that is paved = $(25 - 8.75) \text{ m}^2$

$= 16.25 \text{ m}^2$

$$
\begin{array}{r}
2\,5\,.\,0\,0 \\
-\quad 8\,.\,7\,5 \\
\hline
1\,6\,.\,2\,5
\end{array}
$$

Answer: 16.25 m^2

35. Complete the shape using **XY** as the line of symmetry.

Answer:

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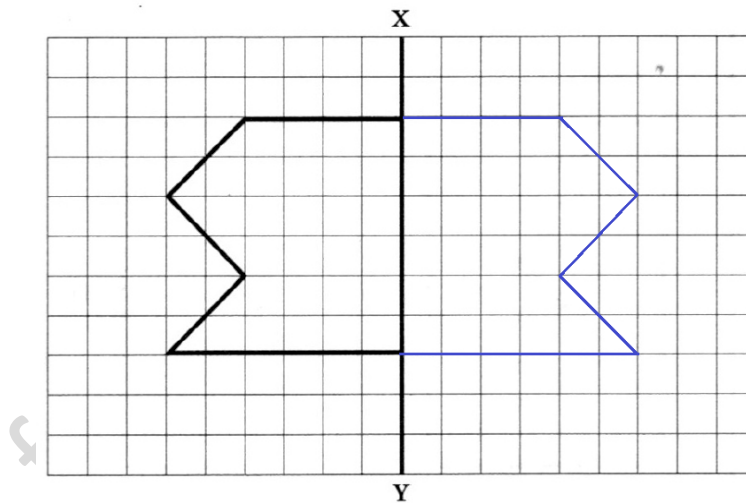
36. Two boys have kites in the shape of quadrilaterals.
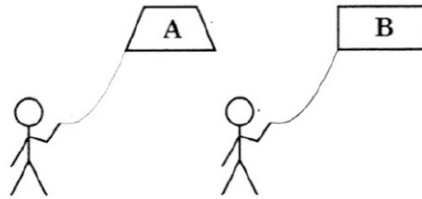
Write **two** differences in the properties of Kite A and Kite B.

Kite A appears to be a trapezium.
Kite B appears to be a rectangle.

Answer: Kite B has two pairs of parallel sides while Kite A has only one pair of parallel sides. The four angles of Kite B are all right angles and none of the angles in Kite A are right angles.

37. Michael and Joey played a game where they both turned in a clockwise direction. They started the game with each boy facing north and they both turned together. Michael made half turns and Joey made quarter turns.

Complete the table below to show the direction each boy faced after each turn.

Turn Number	Michael	Joey
0 (Start)	North	North
1	South	_____
2	_____	South
3	South	_____
4	North	North

Answer:

Turn Number	Michael	Joey
0 (Start)	North	North
1	South	East
2	North	South
3	South	West
4	North	North

38. The table below shows the scores of some Standard 4 students in a Mathematics test.

Score	5	10	15	20	25	30
Number of Students	5	7	10	8	6	4

What percentage of the students had a score of **at least** 15?

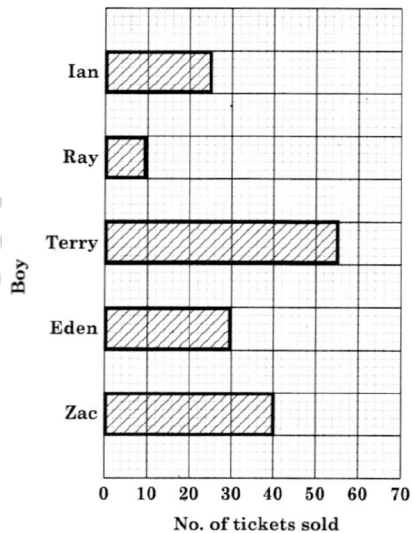Number of students who scored at least 15 is $10 + 8 + 6 + 4 = 28$
The number of students in the class is $5 + 7 + 10 + 8 + 6 + 4 = 40$.

The percentage who scored at least 15 $= \dfrac{\text{No. of students who scored at least 15}}{\text{Total no. of students}} \times 100$

$$= \frac{28}{40} \times 100$$
$$= 70\%$$

Answer: 70%

39. The bar graph below shows the number of raffle tickets sold by five boys.

RAFFLE TICKETS SOLD

The total number of tickets to be sold was 200.
Which boy or boys should be given more tickets to sell? Give a reason for your answer.

Answer: Terry followed by Zac sold the most tickets. Terry (55) and Zac (40)

Total number of tickets sold = 25 + 10 + 55 + 30 + 40 =160. Unsold = 200-160 = 40
Both appear to be good salesmen and are likely to sell off the remaining 40 unsold tickets.
(There can be other answers based other rationales)

40. Arnold's mean mark in 4 tests is 73. He wants to increase his mean by 5 marks.

How many marks must he score in the fifth test?

The mean mark after 4 tests is 73.
So the total scored in the 4 tests $= 73 \times 4$
$$= 292$$

If his mean mark is to increase by 5 then it will be $73 + 5 = 78$.
After 5 tests this total should be $78 \times 5 = 390$.

In the 5th test, Arnold needs to score $390 - 292 = 98$ marks.

Answer: 98 marks

41. Omari bought some magnets and spinners. Each magnet cost $2.00 and each spinner cost $4.00. He bought 7 more magnets than spinners and spent a total of $104.00.
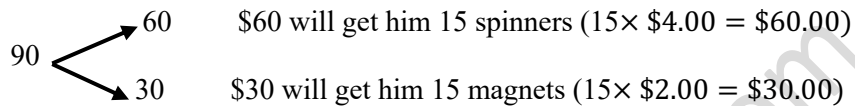
How many magnets did he buy?

Omari spent a total of $2.00 \times 7 = \$14.00$ on the 7 magnets
Therefore, he would have spent the remaining $90.00 ($104.00 − $14.00) on an equal number of magnets and spinners.
Since the spinners cost twice as much as the magnets, he would have spent twice as much on spinners than on magnets.
Hence, the $90.00 would have to be split in two parts so that one part is twice the other.

60　　　$60 will get him 15 spinners $(15 \times \$4.00 = \$60.00)$

90

30　　　$30 will get him 15 magnets $(15 \times \$2.00 = \$30.00)$

In total, Omari bought (15+ 7) = 22 magnets and 15 spinners

Alternative Method
The number of magnets is 7 more than the number of spinners.
Checking the cost of:
1 spinner and $1 + 7 = 8$ magnets $= (1 \times 4) + (8 \times 2) = \$20$
2 spinners and $2 + 7 = 9$ magnets $= (2 \times 4) + (9 \times 2) = 8 + 18 = \$26$
3 spinners and $3 + 7 = 10$ magnets $= (3 \times 4) + (10 \times 2) = 12 + 20 = \$32$
4 spinners and $4 + 7 = 11$ magnets $= (4 \times 4) + (11 \times 2) = 16 + 22 = \$38$
5 spinners and $5 + 7 = 12$ magnets $= (5 \times 4) + (12 \times 2) = 20 + 24 = \$44$
6 spinners and $6 + 7 = 13$ magnets $= (6 \times 4) + (13 \times 2) = 24 + 26 = \$50$
7 spinners and $7 + 7 = 14$ magnets $= (7 \times 4) + (14 \times 2) = 28 + 28 = \$56$
8 spinners and $8 + 7 = 15$ magnets $= (8 \times 4) + (15 \times 2) = 32 + 30 = \$62$
9 spinners and $9 + 7 = 16$ magnets $= (9 \times 4) + (16 \times 2) = 36 + 32 = \$68$
10 spinners and $10 + 7 = 17$ magnets $= (10 \times 4) + (17 \times 2) = 40 + 34 = \$74$
11 spinners and $11 + 7 = 18$ magnets $= (11 \times 4) + (18 \times 2) = 44 + 36 = \$80$
12 spinners and $12 + 7 = 19$ magnets $= (12 \times 4) + (19 \times 2) = 48 + 38 = \$86$
13 spinners and $13 + 7 = 20$ magnets $= (13 \times 4) + (20 \times 2) = 52 + 40 = \$92$
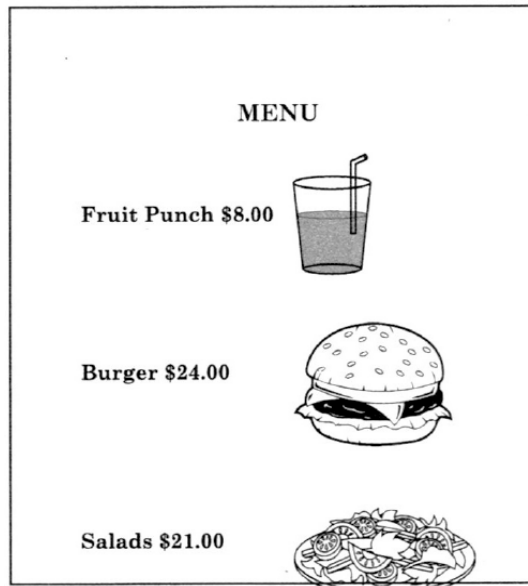14 spinners and $14 + 7 = 21$ magnets $= (14 \times 4) + (21 \times 2) = 56 + 42 = \$98$
15 spinners and $15 + 7 = 22$ magnets $= (15 \times 4) + (22 \times 2) = 60 + 44 = \$104$

Hence, Omari bought 15 spinners and 22 magnets.

Answer: 22 magnets

42. A family of 4 persons bought lunch from the menu.

MENU

Fruit Punch $8.00

Burger $24.00

Salads $21.00

The total bill was $125.00. Each person's meal included a fruit punch. How many burger(s) and salad(s) were bought?

Cost of 4 fruit punches $= 4 \times 8.00$
$= \$32.00$

So, the cost of the burgers and the salads $= \$125 - \$32$
$= \$93$

3 burgers at $24 cost $\$ 7\ 2\ +$
1 salad at $21 costs $\underline{\$ 2\ 1}$
$\underline{\$ 9\ 3}$

Answer: 3 burgers and 1 salad

43. Identical rectangular cards are placed on a straight line at an equal distance from each other, as shown below. The total distance from the first card to the third card is 17 cm. Each card has a width of 3 cm.
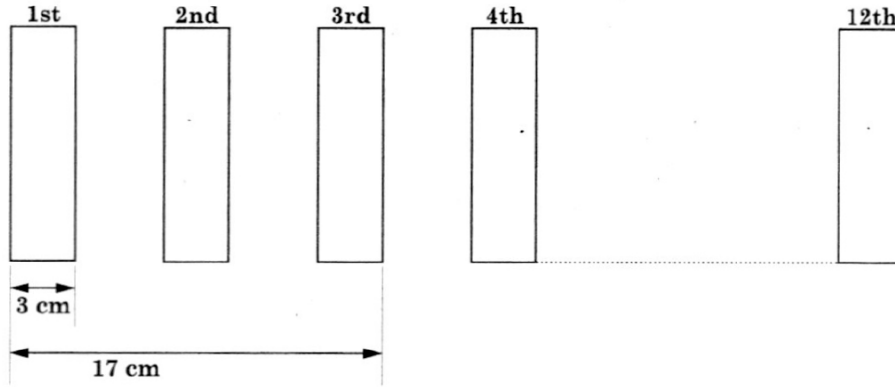
What is the total distance from the 3rd card to the 12th card?

The space between 2 cards equal $=17-3(3)$
$$=17-9$$
$$=8 \text{ cm}$$
So the space between each card is 8 ÷ 2 = 4 cm
From the 3rd to the 12th card will be 9 similar spaces 9 × 4 = 36 cm

*The width of all 10 cards including the 3rd and 12th cards = 3 cm × 10 = 30 cm

The distance from the 3rd to the 12th card = 36 + 30
$$= 66 \text{ cm}$$

Answer: 66 cm

*Note if one ignores the width of any one of the end cards, the answer is 63 cm and if one ignores the width of the two end cards the answer is 60 cm.
It is always advisable to establish a clear starting point and end point when measuring distance. However, in this question, the distance from the first card to the 3rd card was given as 17 cm and this included the width of both end cards, so it is reasonable to assume that the distance between any two cards must include the width of the two end cards for this question.

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44. Cubes are used to make a pattern to build staircases as shown below.

1 step   2 steps   3 steps   4 steps
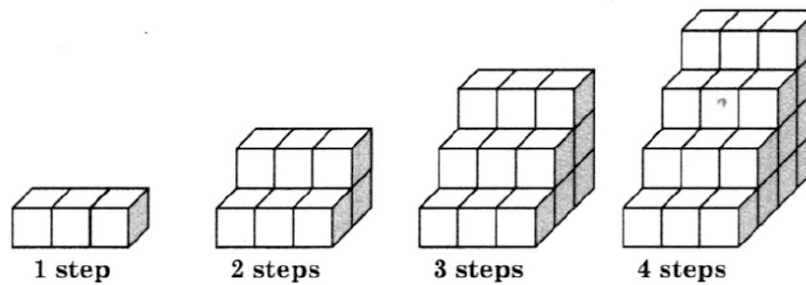
a) How many cubes will be used to build a staircase with 6 steps?

1st step requires 3 cubes.
2nd step requires 9 cubes.
3rd step requires 18 cubes.
4th step requires 30 cubes.

$$3 \xrightarrow[+6]{} 9 \xrightarrow[+9]{} 18 \xrightarrow[+12]{} 30 \xrightarrow[+15]{} \overset{5^{th}}{45} \xrightarrow[+18]{} \overset{6^{th}}{63}$$

Therefore, the staircase with 6 steps requires 63 cubes.

Answer: 63 cubes

b) If 135 cubes are used to build a similar staircase, how many steps will the staircase have?

$$\overset{6^{th}}{63} \xrightarrow[+21]{} \overset{7^{th}}{84} \xrightarrow[+24]{} \overset{8^{th}}{108} \xrightarrow[+27]{} \overset{9^{th}}{135}$$

Therefore, there will be 9 steps in this staircase.

Answer: 9 steps

45. Maya has 285 stickers, Rene has 350 stickers and Zara has 175 stickers.

How many stickers must Rene and Maya give to Zara so that the 3 girls will have the same number of stickers?

Total number of stickers $= \ 2\,8\,5 \ + 350 + 175 = 810$

H	T	O
2	8	5
+ 3	5	0
1	7	5
8	1	0

To have the same number of stickers, each girl must have $= (810 \div 3)$ stickers

$= 270$ stickers

	H	T	O
3	8	^{2}1	0
	2	7	0

So, Maya must give $285 - 270 = 15$ stickers to Zara and remain with 270 stickers.
And Rene must give $350 - 270 = 80$ stickers to Zara and remain with 270 stickers.
So Zara will then have $175 + 15 + 80 = 270$ stickers.

Answer: Maya gives 15 stickers
Rene gives 80 stickers

END OF TEST

By Fayad W. Ali and Shereen A. Khan.