Year 4 ANSWERS

N1a Place Value - Integers

Answers

1) Put the following numbers in the place value table.

a) 2415
b) 607
c) 9380
d) 2004

1000 Thousands	100 Hundreds	10 Tens	1 Units
2	**4**	**1**	**5**
	6	**0**	**7**
9	**3**	**8**	**0**
2	**0**	**0**	**4**

2) Write the following numbers in figures.

a) six hundred and sixty seven **667**
b) two thousand one hundred and fifty six **2156**
c) nine hundred and fourteen **914**
d) four thousand and seventy one **4071**

3) Write the following numbers in words.

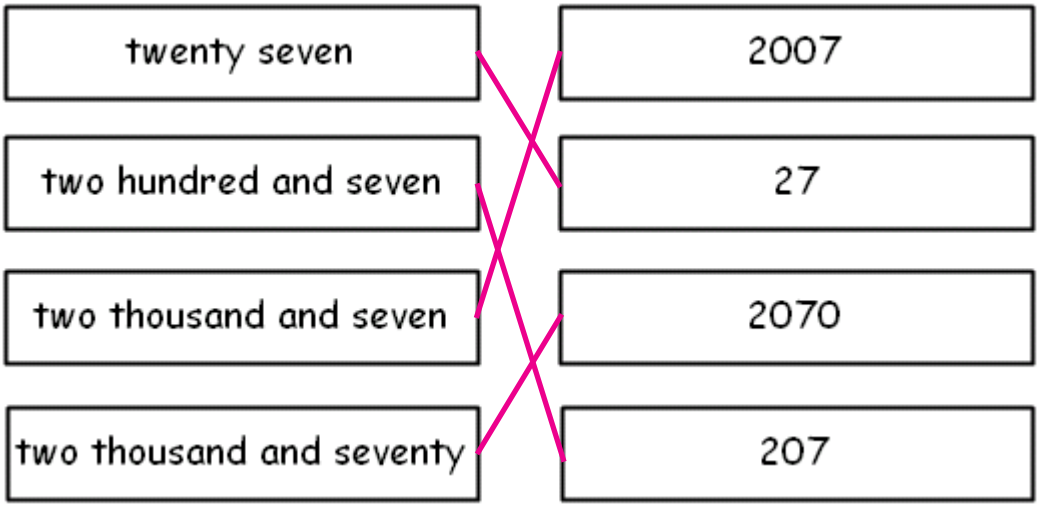
a) 5432 **five thousand four hundred and thirty two**
b) 811 **eight hundred and eleven**
c) 3620 **three thousand six hundred and twenty**
d) 9090 **nine thousand and ninety**

4) a) What is the value of the 2 in the number 1250? **200**
b) What is the value of the 6 in the number 6924? **6000**

N1a Place Value - Integers

Answers

1) Match the words with the correct numbers.



2) Here are four number cards.

4	6	3	1

a) What is the **biggest three digit** number you can make with these cards? 6 4 3

b) What is the **biggest even number** you can make with all four cards? 6 3 1 4

3) a) Write a whole number that is bigger than **one thousand** but smaller than **one thousand one hundred**. anything from 1001 to 1099

b) Write the number **eleven thousand eleven hundred and eleven**. 12 111

N1b Place Value - Decimals

Answers

1) Put the following numbers in the place value table:
   a) 7.24
   b) 30.036
   c) 209.107
   d) 5034.005

Thousands	Hundreds	Tens	Units	.	Tenths	Hundredths	Thousandths
			7	.	2	4	
		3	0	.	0	3	6
	2	0	9	.	1	0	7
5	0	3	4	.	0	0	5

2) Write the following numbers in figures:
   a) Eight point two four 8.24
   b) Fifty point zero two five 50.025
   c) Three hundred and six point two 306.2
   d) Two thousand, five hundred and forty point zero seven 2540.07

3) Write the following numbers in words:
   a) 7.5 Seven point five
   b) 80.26 Eighty point two six
   c) 930.074 Nine hundred and thirty point zero seven four
   d) 1402.306 One thousand four hundred and two point three zero six

4) a) What is the value of the 4 in the number 72.46? Four tenths
   b) What is the value of the 5 in the number 8.205? Five thousandths

N1c Place Value - Measures

Answers

m		cm	mm

1) Use the place value table to convert

a) 2571 mm to cm 257.1 cm

b) 7 cm to mm 70 mm

c) 4 m to cm 400 cm

d) 324 mm to m 0.324 m

e) 8 cm to m 0.08 m

L			mL

2) Use the place value table to convert

a) 4052 ml to L 4.052 L

b) 596 mL to L 0.596 L

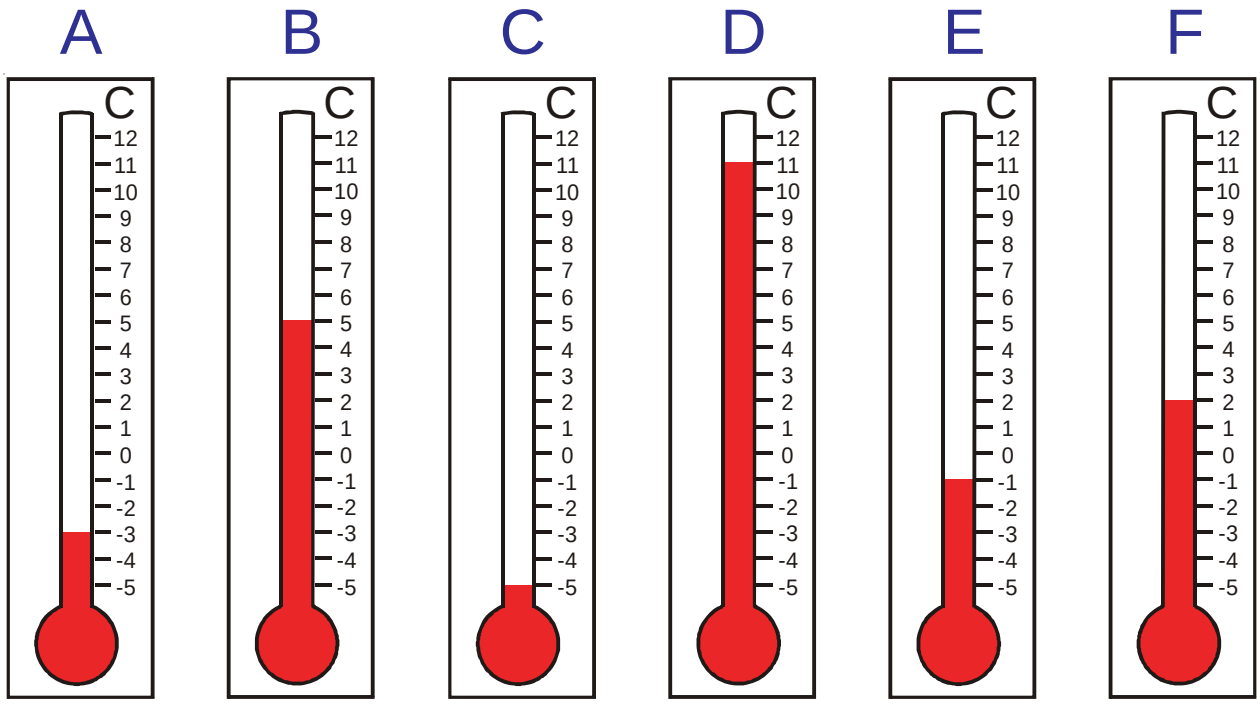
c) 7 L to mL 7000 mL

d) 8.4 L to mL 8400 mL

e) 9.03 L to mL 9030 mL

N2a Ordering Numbers - Integers

Answers



The thermometers A to F show the temperature at 3:00 A.M. in six different cities.
Use them to fill in the table below.
The first one has been done for you.

Thermometer	Temperature at 3.00 A.M	Temperature change over next five hours	Temperature at 8.00 A.M.
A	-3 °C	rises 8 °C	5 °C
B	5 °C	falls 6 °C	-1 °C
C	-5 °C	rises 3 °C	-2 °C
D	11 °C	falls 15 °C	-4 °C
E	-1 °C	rises 8.5 °C	7.5 °C
F	2 °C	falls 6.5 °C	-4.5 °C

N2a Ordering Numbers - Integers

Answers

1) Place these numbers in order of size, smallest to largest.

a) -1, 2, 5, 6

b) -5, -2, 3, 4, 7

c) -4, -2, -1, 0, 3, 9

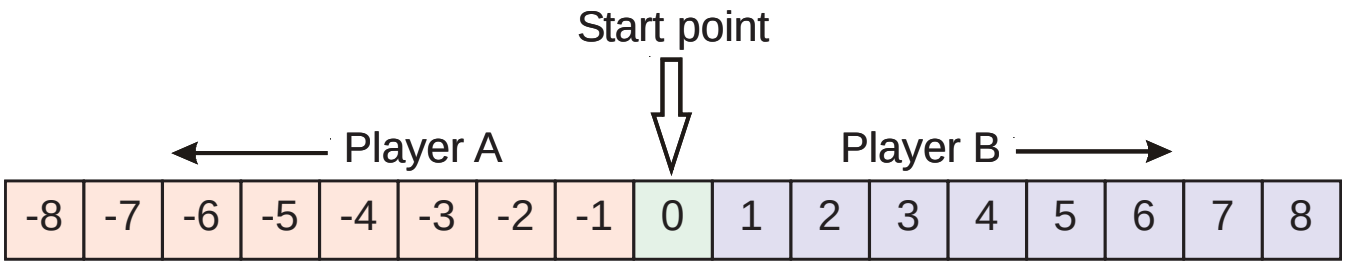
d) -9, -6, -4, -3, 1, 4, 8

e) -12, -10, -8, -7, -6, -4, -3

f) -5.5, -4, -3.5, -3, -2.5, 6, 7.5, 8.5

2) a) What is special about the temperature 100 °C? Water boils

b) What is special about the temperature 0 °C? Water freezes



3) Place a counter on 0.

Player A and B take turns in rolling a dice.

Whatever scores player A gets, he/she always moves this many squares to the left.

Whatever scores player B gets, he/she always moves this many squares to the right.

Player A wins if he/she needs to move to a square which is less than -8.

Player B wins if he/she needs to move to a square which is more than 8.

N2b Ordering Numbers - Decimals

Answers

1) a) 0.47 J b) 0.407 C c) 7.04 E d) 47.4 G

From the following list, match the correct way of reading each of the above numbers.

A- seven point four
B- zero point forty seven
C- zero point four zero seven
D- four seven point four
E- seven point zero four
F- seven zero four
G- forty seven point four
H- four seven four
I- four seven point zero
J- zero point four seven

2) Arrange the numbers in order of size, starting with the smallest.

a) 1.8 0.8 8 8.1
0.8 1.8 8 8.1

b) 0.08 1.16 0.12 1.09
0.08 0.12 1.09 1.16

c) £4.04 £4.40 £4.14 £0.41
£0.41 £4.04 £4.14 £4.40

d) 3.11 3.1 3 3.011 3.001
3 3.001 3.011 3.1 3.11

e) 0.2 0.022 0.202 0.222 0.22
0.022 0.2 0.202 0.22 0.222

f) 6.06 60.06 6.606 66.06 6.066
6.06 6.066 6.606 60.06 66.06

N2b Ordering Numbers - Decimals

Answers

1) Here are some number cards.

4	7	3	1	.

Each card can be used once, all cards must be used,
the decimal point card cannot be at the end of a number.

a) What is the smallest number you can make?

1	.	3	4	7

b) What is the largest number you can make?

7	4	3	.	1

2) The times, in seconds, for the seven runners in a 100m race were:

9.96 10.03 9.92 10.26 10.37 9.99 10.00

What was the time of the winner? 9.92

3) I am a decimal number.
I have two figures before the decimal point and two figures after the decimal point.
I read the same forwards as backwards.
I have no zeros.
My first digit is bigger than my second digit.
The sum of my digits is 8.

What number am I? 31.13

N3a Adding Integers - Mentally

Answers

For each set of questions, time how long it takes to get the answers.
You must work out the answers in your head - *you can't do any working on paper.*

Set A

1) 23 + 35 = 58
2) 17 + 13 = 30
3) 45 + 46 = 91
4) 38 + 44 = 82
5) 71 + 54 = 125
6) 38 + 46 = 84
7) 27 + 68 = 95
8) 64 + 77 = 141
9) 64 + 99 = 163
10) 87 + 96 = 183

Set B

1) 42 + 56 = 98
2) 23 + 56 = 79
3) 37 + 25 = 62
4) 68 + 26 = 94
5) 83 + 65 = 148
6) 59 + 37 = 96
7) 42 + 39 = 81
8) 57 + 68 = 125
9) 99 + 48 = 147
10) 68 + 94 = 162

Set C

1) 62 + 24 = 86
2) 38 + 22 = 60
3) 17 + 34 = 51
4) 52 + 29 = 81
5) 82 + 63 = 145
6) 28 + 36 = 64
7) 88 + 17 = 105
8) 67 + 56 = 123
9) 42 + 98 = 140
10) 78 + 93 = 171

For any set of questions:

45 seconds or less:	Maths teacher standard
46 to 89 seconds:	Extremely fast
90 to 149 seconds:	Fast
150 to 209 seconds:	Reasonable
210 seconds or more:	A bit more practise needed

N3a Adding Integers - Mentally

Answers

How do you win every time?

You probably noticed that if you can get to 18 you definitely win.

But, if you get to 15 you can definitely get to 18 and so 15 is a step on the way to victory.

And if you get to 12 you can get to 15.

To cut a long story short, just stick to the 3 times table (or get on to it as soon as you can if you go first.)

So, if you go second, your numbers will always be:

3, 6, 9, 12, 15, 18, 21.

If you go first, start with a 1 or 2 and keep playing until you can say, 6, 9, 12, etc.

N3b Adding Integers - Written Method

Answers

1) 51 + 36 = 87

2) 41 + 27 = 68

3) 231 + 25 = 256

4) 446 + 38 = 484

5) 569 + 84 = 653

6) 316 + 262 = 578

7) 596 + 472 = 1068

8) 657 + 847 = 1504

9) 62 + 38 + 517 = 617

10) 216 + 32 + 518 + 74 = 840

N3b Adding Integers - Written Method

Answers

1)
$$\begin{array}{r} 23 \\ +\ 4\mathbf{5} \\ \hline 68 \\ \hline \end{array}$$

2)
$$\begin{array}{r} 58 \\ +\ 2\mathbf{6} \\ \hline 84 \\ \hline \end{array}$$

Work out what the $*$ must be.

3)
$$\begin{array}{r} 79 \\ +\ 4\mathbf{8} \\ \hline 127 \\ \hline \end{array}$$

4)
$$\begin{array}{r} \mathbf{7}3 \\ +\ 8\mathbf{7} \\ \hline 160 \\ \hline \end{array}$$

5)
$$\begin{array}{r} \mathbf{94} \\ +\ \mathbf{9}8 \\ \hline 192 \\ \hline \end{array}$$

6)
$$\begin{array}{r} 2\mathbf{6}6 \\ +\ 35\mathbf{2} \\ \hline 618 \\ \hline \end{array}$$

7)
$$\begin{array}{r} 4\mathbf{87} \\ +\ \mathbf{2}64 \\ \hline 751 \\ \hline \end{array}$$

8)
$$\begin{array}{r} \mathbf{8}6\mathbf{7} \\ +\ 4\mathbf{9}6 \\ \hline 1363 \\ \hline \end{array}$$

N4a Subtracting Integers - Mentally

Answers

For each set of questions, time how long it takes to get the answers.
You must work out the answers in your head - *you can't do any working on paper.*

Set A

1) 75 – 71 = 4
2) 98 – 93 = 5
3) 84 – 32 = 52
4) 68 – 24 = 44
5) 79 – 47 = 32
6) 38 – 29 = 9
7) 67 – 48 = 19
8) 54 – 39 = 15
9) 94 – 36 = 58
10) 72 – 25 = 47

Set B

1) 57 – 52 = 5
2) 78 – 71 = 7
3) 56 – 13 = 43
4) 78 – 27 = 51
5) 66 – 31 = 35
6) 84 – 38 = 46
7) 76 – 29 = 47
8) 43 – 17 = 26
9) 62 – 26 = 36
10) 51 – 24 = 27

Set C

1) 39 – 34 = 5
2) 67 – 62 = 5
3) 83 – 42 = 41
4) 88 – 34 = 54
5) 76 – 25 = 51
6) 63 – 39 = 24
7) 46 – 28 = 18
8) 54 – 48 = 6
9) 72 – 27 = 45
10) 72 – 38 = 34

For any set of questions:

45 seconds or less:	Maths teacher standard
46 to 89 seconds:	Extremely fast
90 to 149 seconds:	Fast
150 to 209 seconds:	Reasonable
210 seconds or more:	A bit more practise needed

N4a Subtracting Integers - Mentally

Answers

This trick works by itself.
On the piece of paper you must always write the number **1089**.
This number will always be the answer.
Here are some examples to show you.

412	913	784
−214	−319	−487
198	594	297
+891	+495	+792
1089	1089	1089

543	978	310
−345	−879	−013
198	099	297
+891	+990	+792
1089	1089	1089

N4b Subtracting Integers - Written Method

Answers

1) 35 – 12 = 23

2) 58 – 27 = 31

3) 93 – 46 = 47

4) 258 – 37 = 221

5) 681 – 79 = 602

6) 420 – 68 = 352

7) 743 – 471 = 272

8) 361 – 278 = 83

9) 800 – 692 = 108

10) 1450 – 785 = 665

N4b Subtracting Integers - Written Method

Answers

1) $\begin{array}{r} 45 \\ -\ 23 \\ \hline 22 \\ \hline \end{array}$

2) $\begin{array}{r} 79 \\ -\ 45 \\ \hline 34 \\ \hline \end{array}$

3) $\begin{array}{r} 67 \\ -\ 26 \\ \hline 41 \\ \hline \end{array}$

4) $\begin{array}{r} 86 \\ -\ 61 \\ \hline 25 \\ \hline \end{array}$

5) $\begin{array}{r} 63 \\ -\ 47 \\ \hline 16 \\ \hline \end{array}$

6) $\begin{array}{r} 345 \\ -\ 263 \\ \hline 82 \\ \hline \end{array}$

7) $\begin{array}{r} 928 \\ -\ 363 \\ \hline 565 \\ \hline \end{array}$

8) $\begin{array}{r} 783 \\ -\ 596 \\ \hline 187 \\ \hline \end{array}$

N5 Multiplication by 2, 3, 4, 5, and 10 *Answers*

1) Fill in the missing numbers in the minitables below.

a)

×	**10**	**4**	**5**	**3**
3	30	12	15	9
2	20	8	10	6
1	10	4	5	3
5	50	20	25	15

b)

×	**5**	**3**	**4**	**2**
2	10	6	8	4
4	20	12	16	8
10	50	30	40	20
3	15	9	12	6

2) Work out

a) $2 \times 17 =$ 34 b) $24 \times 5 =$ 120

c) $10 \times 9 =$ 90 d) $4 \times 62 =$ 248

e) $37 \times 3 =$ 111 f) $2 \times 81 =$ 162

g) $5 \times 32 =$ 160 h) $3 \times 19 =$ 57

i) $26 \times 4 =$ 104 j) $11 \times 10 =$ 110

N5 Multiplication by 2, 3, 4, 5, and 10 *Answers*

1) a) **Use the table** to fill in the gaps below.

21 × 14 = 294

12 × 19 = 228

21 × 15 = 315

286 ÷ 22 = 13

×	11	12	13	14	15
18	198	216	234	252	270
19	209	228	247	266	285
20	220	240	260	280	300
21	231	252	273	294	315
22	242	264	286	308	330

b) Give two **different** pairs of numbers.

12 × 21 = 252

14 × 18 = 252

2) Julia says:

"*Multiply any number by five.*
The answer must be an odd number."

Is she correct?
Circle **Yes** or **No**

Yes / (No)

Explain how you know.

Any example which shows this is wrong such as:

2 × 5 = 10 and 10 is an even number.

N6

Division by 2, 3, 4, 5, and 10

Answers

1) Work out

a) 16 ÷ 2 = 8

b) 30 ÷ 5 = 6

c) 21 ÷ 3 = 7

d) 40 ÷ 4 = 10

e) 35 ÷ 5 = 7

f) 24 ÷ 3 = 8

2) Work out

a) 46 ÷ 2 = 23

b) 39 ÷ 3 = 13

c) 65 ÷ 5 = 13

d) 62 ÷ 4 = 15 r2

e) 47 ÷ 3 = 15 r2

f) 11 ÷ 10 = 1 r1

g) 92 ÷ 4 = 23

h) 57 ÷ 3 = 19

i) 90 ÷ 5 = 18

j) 83 ÷ 10 = 8 r3

N6

Division by 2, 3, 4, 5, and 10

Answers

1) Here is part of the 45 times table.
Use the table to help you fill in the missing numbers.

a) 315 ÷ 7 = 45

b) 135 ÷ 45 = 3

c) 270 ÷ 6 = 45

d) 9 × 45 = 405

e) 495 ÷ 45 = 11

f) 20 × 45 = 900

g) 450 ÷ 30 = 15

1 × 45	=	45
2 × 45	=	90
3 × 45	=	135
4 × 45	=	180
5 × 45	=	225
6 × 45	=	270
7 × 45	=	315
8 × 45	=	360
9 × 45	=	405
10 × 45	=	450

2) Joe says:

"*Divide any number by three.*
The answer must be an even number."

Is he correct?
Circle **Yes** or **No**

Yes / (No)

Explain how you know.

15 ÷ 3 = 5 and 5 is an odd number.

N7a Units
Length, Mass and Capacity
Answers

1) a) How many millimetres are in a centimetre? 10

b) How many centimetres are in a metre? 100

c) How many metres are in a kilometre? 1000

d) Work out how many millimetres are in a metre. 1000

2) How many grams are in three kilograms? 3000

3) How many millilitres are in a five litres? 5000

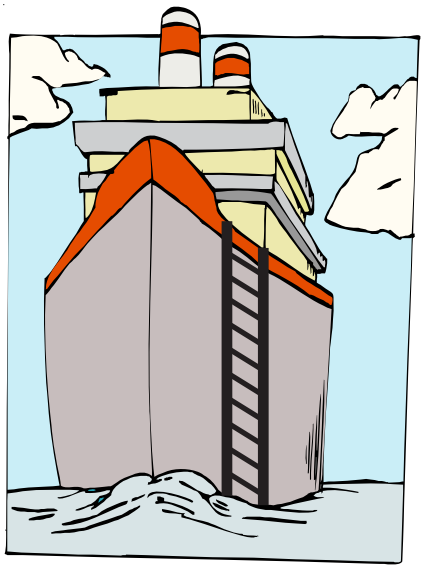
4) In the table, work out what each item should be measured in.
Your choices are mm, cm, m, km, g, kg, ml or l.

Amount of lemonade in a bottle	ml or l
Mass of a lemonade bottle	g or kg
Width of a lemonade bottle	mm or cm
Distance to the moon	km
Mass of a wasp	g
Length of a wasp	mm
Amount of blood in a human body	l

N7a Units
Length, Mass and Capacity
Answers

1) Try to match up A to F with U to Z

A	Mass of the Earth	Y	5 980 000 000 000 000 000 000 000 kg
B	Capacity of all water on Earth	U	1460 000 000 000 000 000 000 litres
C	Length of airways in the lungs laid end-to-end	V	2 400 km
D	Average capacity of air breathed in a day	Z	11 000 litres
E	Mass of Mount Everest	W	3 041 409 000 000 000 kg
F	Blood vessels in a human body laid end-to-end	X	100 000 km



2) The ship is in a harbour.

There are ten rungs visible on the ship's ladder and they are 30 cm apart.

The tide is coming in and the water is rising at the rate of 20 cm per minute.

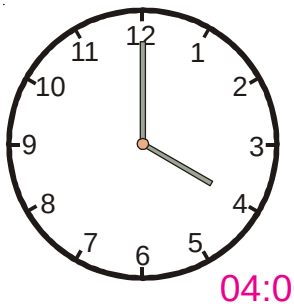
How many rungs will be visible after 9 minutes?

All ten rungs will still be visible because the ship floats.
Try this question with your parents.

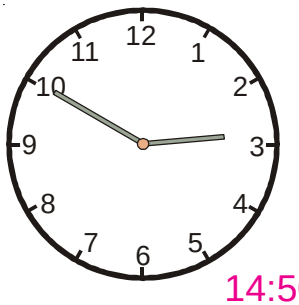
N7b Units - Time

Answers

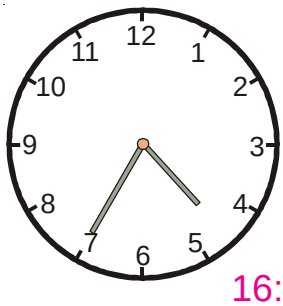
1) Write these times as 24 hour clock times

a) 

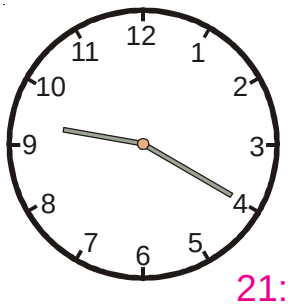
04:00
a.m.

b) 

14:50
p.m.

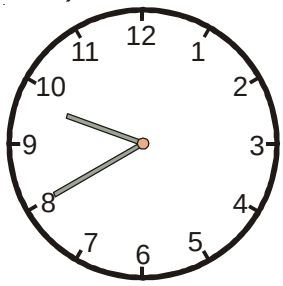
c) 

16:35
p.m.

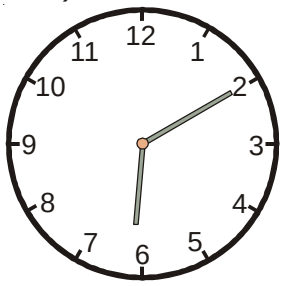
d) 

21:20
p.m.

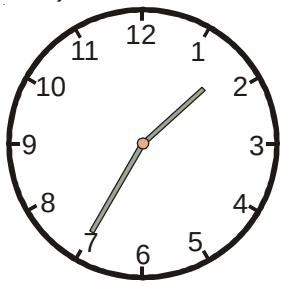
2) Draw these times on the clock faces.
Underneath the clocks write whether the time is a.m. or p.m.

a) 09:40 

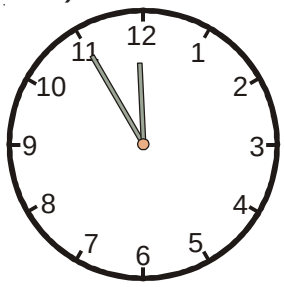
a.m.

b) 18:10 

p.m.

c) 13:35 

p.m.

d) 23:55 

p.m.

3) Peter wants to watch a programme which begins at 8.00 p.m.
It is now 4.30 p.m.
How much time will Peter have to wait? Three and a half hours (3 hours 30 minutes)

4) Susie is going to watch a programme which begins at 20:30 and lasts for one hour and forty five minutes.
What time will it finish? 22:15

N7b Units - Time

Answers

1) Here is a train timetable for trains going from London Euston to Crewe.

a) How many trains stop at Tamworth? 4

b) If Tom gets to London Euston at 15:30 how long will he have to wait for a train to take him to Crewe? 16 mins

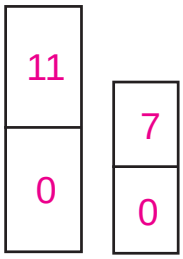
c) How many minutes does the 09:38 London Euston train take to get to Northampton? 47 mins

d) How many minutes does the 14:23 Lichfield train take to get to Crewe? 46 mins

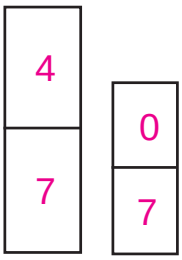
e) How long does the 17:48 London Euston train take to get to Crewe in hours and minutes? 1 hour and 46 mins

2) *This is the easiest way but you need 22 minutes:*

set them off together



after 7 mins put the egg in the boiling water

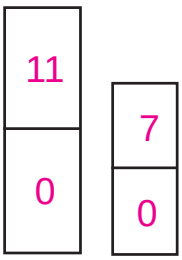


after 4 mins turn the 11 minute timer over again

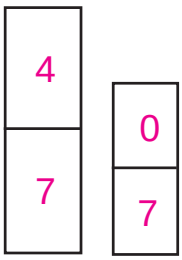
11 minutes later your egg will have boiled for exactly 15 mins

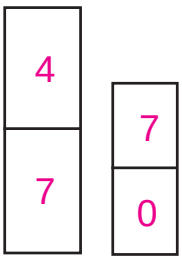
This is a harder way but it only takes 15 minutes:

Put the egg in the boiling water and set both timers off

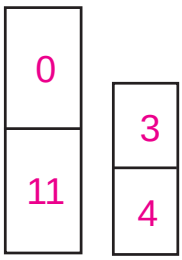


after 7 mins turn the 7 minute timer over straight away

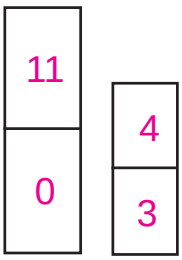




after another 4 mins



turn the 7 minute timer over and wait for it to finish. You now have 15 minutes.



N7c Units - Money

Answers

1) Write the following amounts of money using a £ sign and numbers.

a) Three pounds and thirty seven pence. £3.37

b) Twenty four pounds and fifty pence. £24.50

c) Two hundred and five pounds. £205

d) Nine pounds and sixty pence. £9.60

e) Nine pounds and six pence. £9.06

f) Forty eight pence. £0.48

2) Write the following amounts of money in words.

a) £2.78 Two pounds and seventy eight pence

b) £6.07 Six pounds and seven pence

c) £5.40 Five pounds and forty pence

d) £0.24 Twenty four pence

3) Work out the following on a calculator and write the answers correctly:

a) £115.23 ÷ 23 £5.01

b) £100.80 ÷ 14 £7.20

c) 71p × 10 £7.10

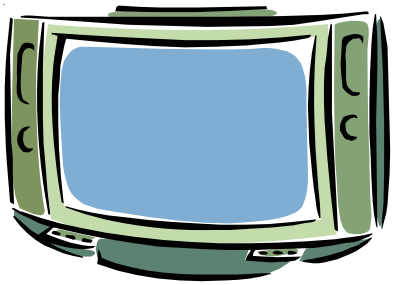
d) £6.40 – £3.83 + £2.10 £4.67

e) £14.83 + £6.17 £21

N7c Units - Money

Answers

Three men went into a second-hand shop to buy a television.



This is a very famous question and has puzzled many generations of children.

The missing £1 is . . . . . *please ask your teacher, your parents and/or your friends.*

We're just not allowed to tell you.

It was priced in the window at £30.

Each of them handed over £10 to the shop assistant.

As the assistant opened the till, the manager had a quiet word with him, "that TV is in the sale and is only £25 now, you will have to give them £5 back."

The assistant was very lazy and couldn't be bothered to count out the right change for each man.

Instead, he took 5 £1 coins out of the till.

He put two of them in his own pocket and gave each man £1 back.

Here's the problem:

The men have now paid £9 each for the TV.

The assistant has kept £2 for himself.

3 × £9 = £27.

£27 + £2 = £29.

But £30 was handed over in the first place.

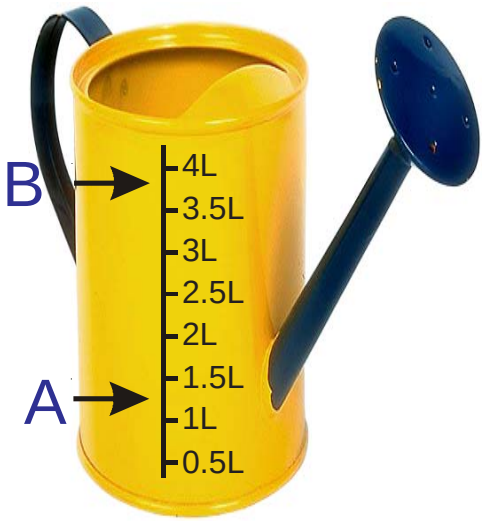
WHERE IS THE MISSING £1?

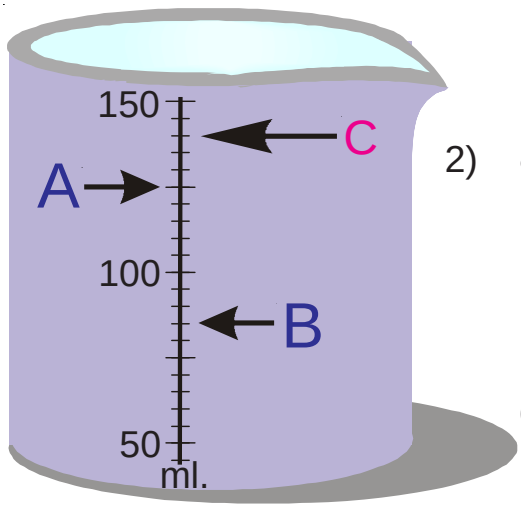
N8 Reading Scales

Answers

1) a) If water comes up to arrow A, how much will there be in the container? 1.25 L

b) About how much water will there be if it comes up to arrow B?
About 3.8 L

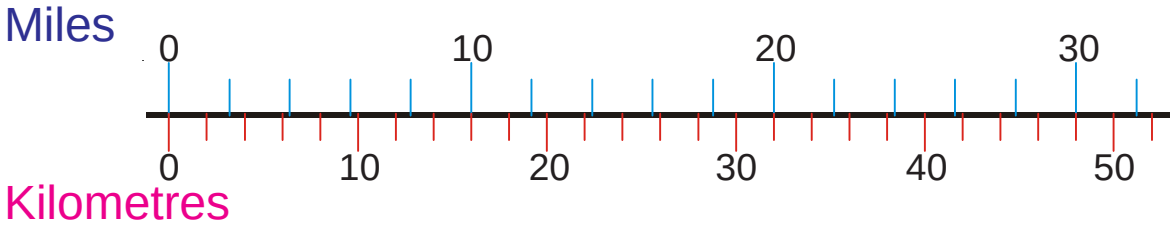




2) a) If milk comes up to arrow A, how much milk will there be in the container? 125 ml

b) How much milk will there be if it comes up to arrow B? 85 ml

c) Draw arrow C to show 140ml of liquid.



3) Use the scale to convert

a) 10 miles to km. 16 km

b) 40 km to miles. 25 miles

c) 16 miles to km. about 25.6 km

d) 8 km to miles. 5 miles

N8 Reading Scales

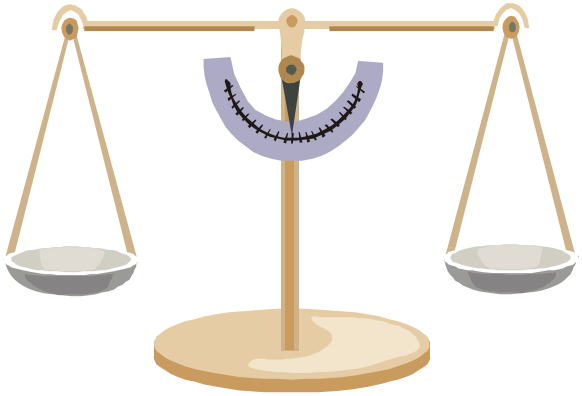
Answers

1)

A 

B 

C 



Split the coins into three sets of three.

Put set A into one pan and B into the other.

If they balance, the fake is in C.

If A is heavier than B then the fake is in B.

If B is heaviest, the fake is in A.

Take the set of three coins with the fake in it and put one coin in one pan and another coin in the other pan.

If they balance, the other coin is the fake.

If they don't balance, the one that goes up is the fake.

2) You have a 3 pint jug and a 5 pint jug and as much water from a tap as you like.
How can you use the two jugs to measure out **exactly** 4 pints of water?

Fill the 5 pint jug and pour it into the 3 pint jug. This leaves 2 pints in the 5 pint jug.

Empty the 3 pint jug and pour the 2 pints from the 5 pint jug into the 3 pint jug.

Fill the five pint jug and pour into the 3 pint jug until it is full.

This will leave you exactly 4 pints in the 5 pint jug.

5 Pints

3 Pints

N9 Mathematical Symbols

Answers

1) State the meaning of each of the following symbols

a) = Equal

b) ≠ Not equal

c) < Less than

d) > Greater than

e) ≤ Less than or equal

f) ≥ Greater than or equal

2) Insert the correct symbol to make these sentences true

a) $4 + 5 > 6 + 2$

b) $10 - 3 < 9 + 1$

c) $6 + 2 = 2 \times 4$

3) State whether each statement is TRUE or FALSE

a) $7 < 4$ FALSE

b) $68p = £0.68$ TRUE

c) $11 > 3$ TRUE

4) You need to be 1.4 m or taller to ride on a rollercoaster. Write a mathematical statement about the heights of people (h metres) allowed on the rollercoaster. $h \geq 1.4$ m

N10 Factors

Answers

1) Write down all the factors of:

a) 6 1 2 3 6

b) 8 1 2 4 8

c) 10 1 2 5 10

d) 12 1 2 3 4 6 12

e) 20 1 2 4 5 10 20

f) 21 1 3 7 21

2) 100 has nine factors.

What are they?

1 2 4 5 10 20 25 50 100

3) The numbers 2, 3, 5 and 7 all have exactly two factors.

Find the next four numbers with only two factors.

11 13 17 19

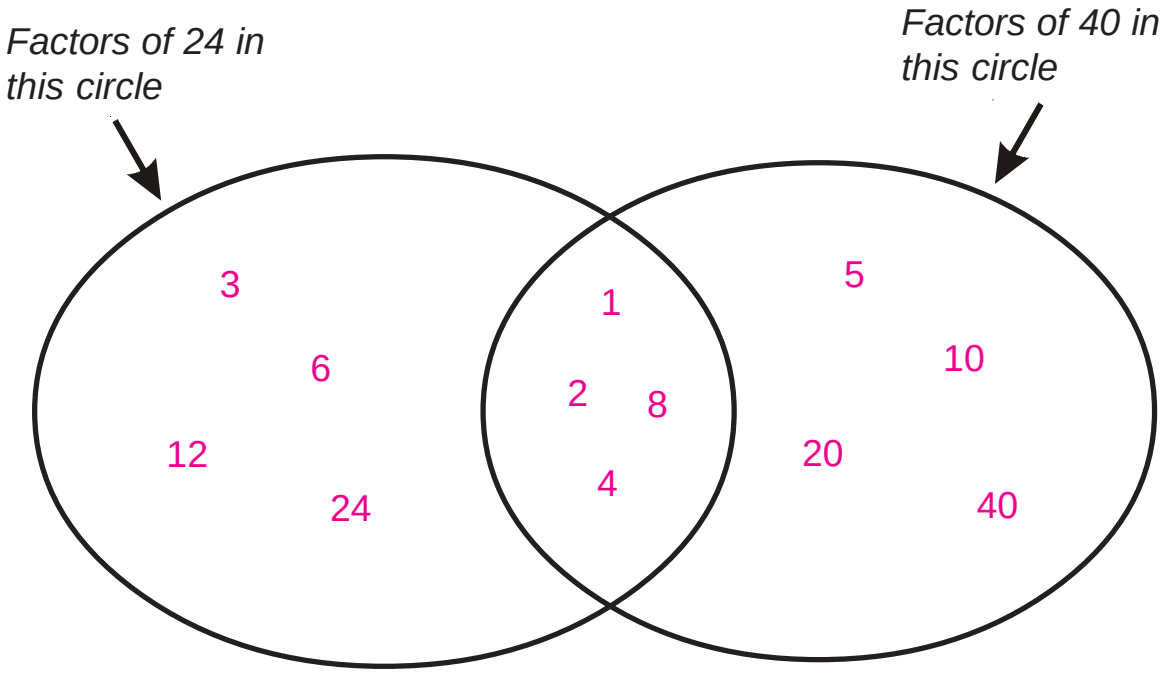
---

4) The numbers 1, 4, 9 and 16 all have an odd number of factors.

Find the next three numbers which have an odd number of factors. 25 36 49

---

5) Put the correct numbers in the circles.
Be careful of the overlaps.

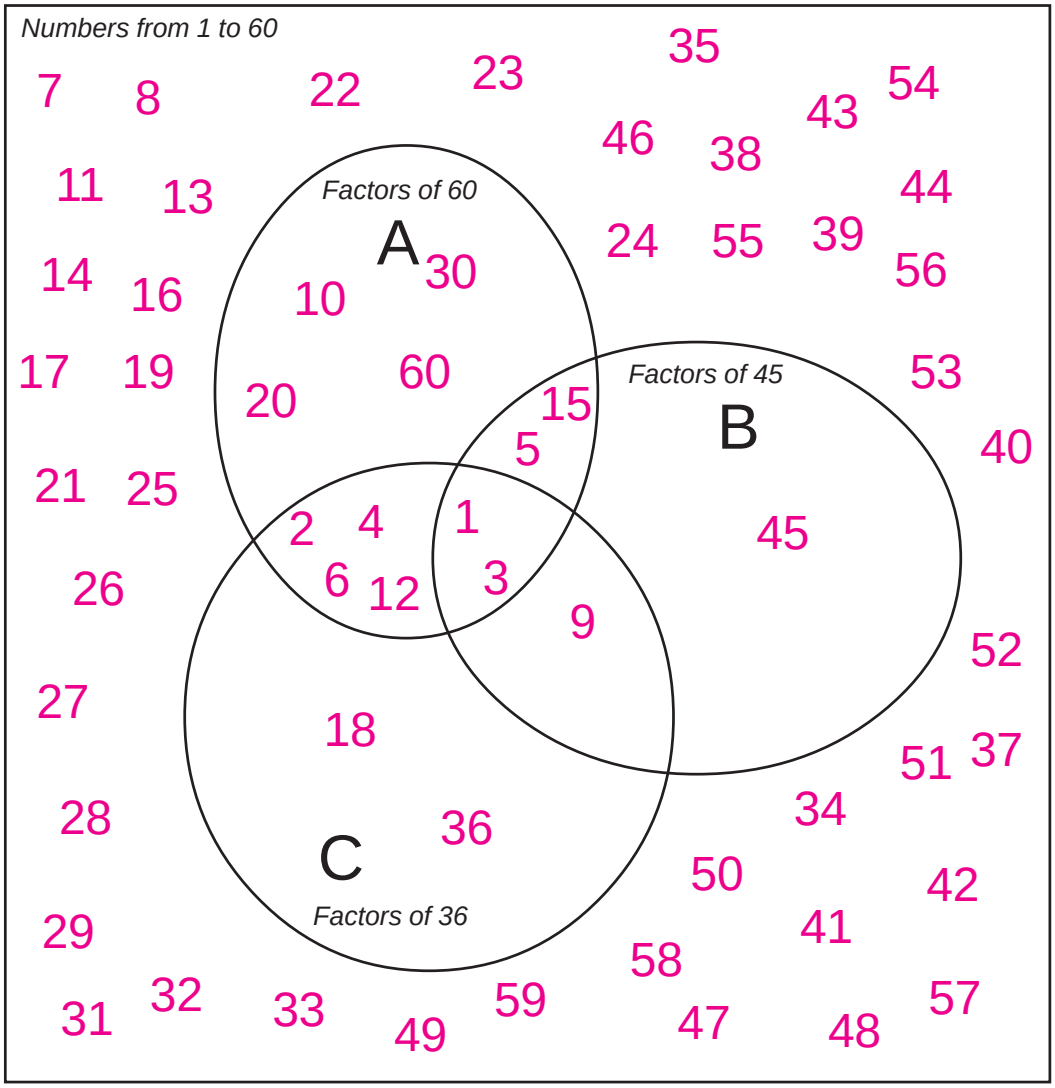


N10 Factors

Answers

Place all the whole numbers from 1 to 60 in the diagram below.
However, you must stick to these four rules:

1) In the rectangle you must have every whole number from 1 to 60
2) In circle A you must have all the factors of 60
3) In circle B you must have all the factors of 45
4) In circle C you must have all the factors of 36



N11 Multiples

Answers

1) a) Write down the first five multiples of 3. 3, 6, 9, 12, 15

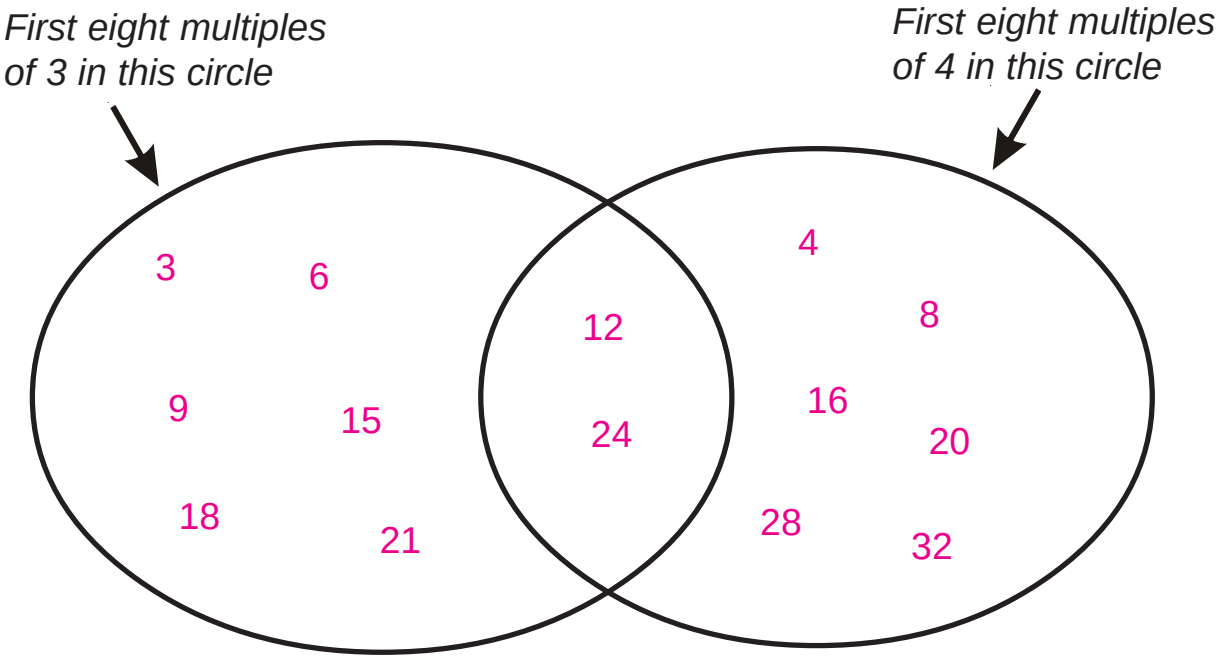
b) Write down the first five multiples of 7. 7, 14, 21, 28, 35

c) Write down the first five multiples of 4. 4, 8, 12, 16, 20

2) 6, 12, 18, 24, 30 are the first five multiples of which number? 6

3) What are the eighth, ninth and tenth multiples of 11? 88, 99, 110

4) Put the correct numbers in these circles.
Be careful of the overlaps.



N11 Multiples

Answers

The sieve of Eratosthenes

~~1~~	2	3	~~4~~	5	~~6~~	7	~~8~~	~~9~~	~~10~~
11	~~12~~	13	~~14~~	~~15~~	~~16~~	17	~~18~~	19	~~20~~
~~21~~	~~22~~	23	~~24~~	~~25~~	~~26~~	~~27~~	~~28~~	29	~~30~~
31	~~32~~	~~33~~	~~34~~	~~35~~	~~36~~	37	~~38~~	~~39~~	~~40~~
41	~~42~~	43	~~44~~	~~45~~	~~46~~	47	~~48~~	~~49~~	~~50~~
~~51~~	~~52~~	53	~~54~~	~~55~~	~~56~~	~~57~~	~~58~~	59	~~60~~
61	~~62~~	~~63~~	~~64~~	~~65~~	~~66~~	67	~~68~~	~~69~~	~~70~~
71	~~72~~	73	~~74~~	~~75~~	~~76~~	~~77~~	~~78~~	79	~~80~~
~~81~~	~~82~~	83	~~84~~	~~85~~	~~86~~	~~87~~	~~88~~	89	~~90~~
~~91~~	~~92~~	~~93~~	~~94~~	~~95~~	~~96~~	97	~~98~~	~~99~~	~~100~~

Just follow these steps:

a) Cross out 1.

b) Shade in the square with 2 in it.
Now cross out all other multiples of 2.

c) Shade in the 3 square.
Cross out all other multiples of 3
(some will already be crossed out).

d) Shade in the 5 square.
Cross out all other multiples of 5.

e) Shade in the 7 square.
There should be just three
other multiples of 7 which
haven't already been crossed out.
Cross them out.

f) Shade in every square that hasn't
been crossed out.

g) Write out the numbers in every
shaded square.

h) Prime numbers

N12 Number Patterns

Answers

1) For each number pattern:

a) Describe the pattern

b) Work out what the next three terms are

goes up in 2s

(i) 2, 4, 6, 8, 10, 12, 14, 16, 18

goes up in 3s

(ii) 1, 4, 7, 10, 13, 16, 19, 22, 25

goes up in 7s

(iii) 5, 12, 19, 26, 33, 40, 47, 54, 61

goes up in 5s

(iv) -2, 3, 8, 13, 18, 23, 28, 33, 38

goes down in 3s

(v) 36, 33, 30, 27, 24, 21, 18, 15, 12

goes up in 4s

(vi) -12, -8, -4, 0, 4, 8, 12, 16, 20

goes down in 9s

(vii) 100, 91, 82, 73, 64, 55, 46, 37, 28

goes up in 1.5s

(viii) 7, 8.5, 10, 11.5, 13, 14.5, 16, 17.5, 19

goes up by 3 then 5 then 7 etc OR
square numbers (1 × 1), (2 × 2), (3 × 3), etc

goes up by 2 then 3 then 4 etc OR
triangle numbers

N12 Number Patterns

Answers

1) Work out the next two terms for each of the following number patterns:

a) 3, 8, 15, 24, 35, 48, 63

b) 4, 14, 36, 76, 140, 234, 364

2) Work out the next two terms for each of the following number patterns:

a) 1, 2, 4, 8, 16, 32, 64, 128

b) 2, 7, 22, 67, 202, 607, 1822

3) Work out the next two terms for each of the following number patterns:

a) 1, 1, 2, 3, 5, 8, 13, 21, 34, 55

b) 1, 2, 3, 6, 11, 20, 37, 68, 125, 230

4) Work out the next two terms for each of the following :

a) O, T, T, F, F, S, S, E, N
First letters of 1, 2, 3, 4, etc

b) J, F, M, A, M, J, J, A, S
First letters of Jan, Feb, Mar, etc

5) Choose any number between 1 and 20.

If your number is even, halve it and write down the answer.
If your number is odd, multiply it by three and add one. Write down the answer.

Look at your answer and follow the same rules:
If it is even you halve it and write down the answer.
If it is odd you multiply by three and add one and write down the answer.

Only stop when you get to one.

Try more starting numbers (of any size).

Do they all go to one? Yes, mathematicians think so.

What about if you use 27 as the number to start with?

It does eventually if you make no mistakes.

---

6) Each row describes the row above.
In the first row we have one 1.
The second row says this (1 1)
The third row describes the second row.
We have two 1s and it says this (2 1)
We now have one 2 and one 1.
The fourth row is therefore 1 2 1 1
If you got this right you are one of a select few.

1
1 1
2 1
1 2 1 1
1 1 1 2 2 1
3 1 2 2 1 1
1 3 1 1 2 2 2 1
1 1 1 3 2 1 3 2 1 1
3 1 1 3 1 2 1 1 1 3 1 2 2 1
1 3 2 1 1 3 1 1 1 2 3 1 1 3 1 1 2 2 1 1

N13a Addition - Integers

Answers

1) 1524 + 4273 = 5797

2) 7452 + 216 = 7668

3) 24578 + 1215 = 25793

4) 591 + 372 + 85 = 1048

5) 9876 + 55 + 1039 = 10970

N13a Addition - Integers

Answers

a)

	1	1	1
	0	2	2
	3	3	3
	4	4	**0**
	5	**0**	5 +
1	4	1	1

b)

	0	1	1
	2	2	**0**
	3	3	3
	4	4	4
	5	**0**	5 +
1	5	1	3

c)

	1	1	1
	2	2	2
	3	**0**	3
	4	4	**0**
	5	5	**0** +
1	6	2	6

d)

	1	1	1
	2	2	**0**
	3	**0**	3
	4	4	4
	5	**0**	5 +
1	5	8	3

N13b Addition - Decimals

Answers

1) 59.1 + 37.2 = 96.3

2) 24.75 + 9.98 = 34.73

3) 94.78 + 104.9 = 199.68

4) 309 + 12.5 + 631.4 = 952.9

5) 105 + 7.32 + 51.8 + 2804 = 2968.12

N13b Addition - Decimals

Answers

Choose a number from a box and a number from a loop to make the totals in a) and b).

3.61	2.975	2.35	1.3	6.72
3.2	7.65	1.006	3.58	2.25

a) 2.35 + 2.25 = 4.6

b) 3.61 + 7.65 = 11.26

N14a Subtraction - Integers

Answers

1) 14562 – 1251 = 13311

2) 6652 – 716 = 5936

3) 42160 – 39215 = 2945

4) 2300 – 934 = 1366

5) 50000 – 2166 = 47834

N14b Subtraction - Decimals

Answers

1) 68.1 – 27.3 = 40.8

2) 24.75 – 0.098 = 24.652

3) 94.78 – 36 = 58.78

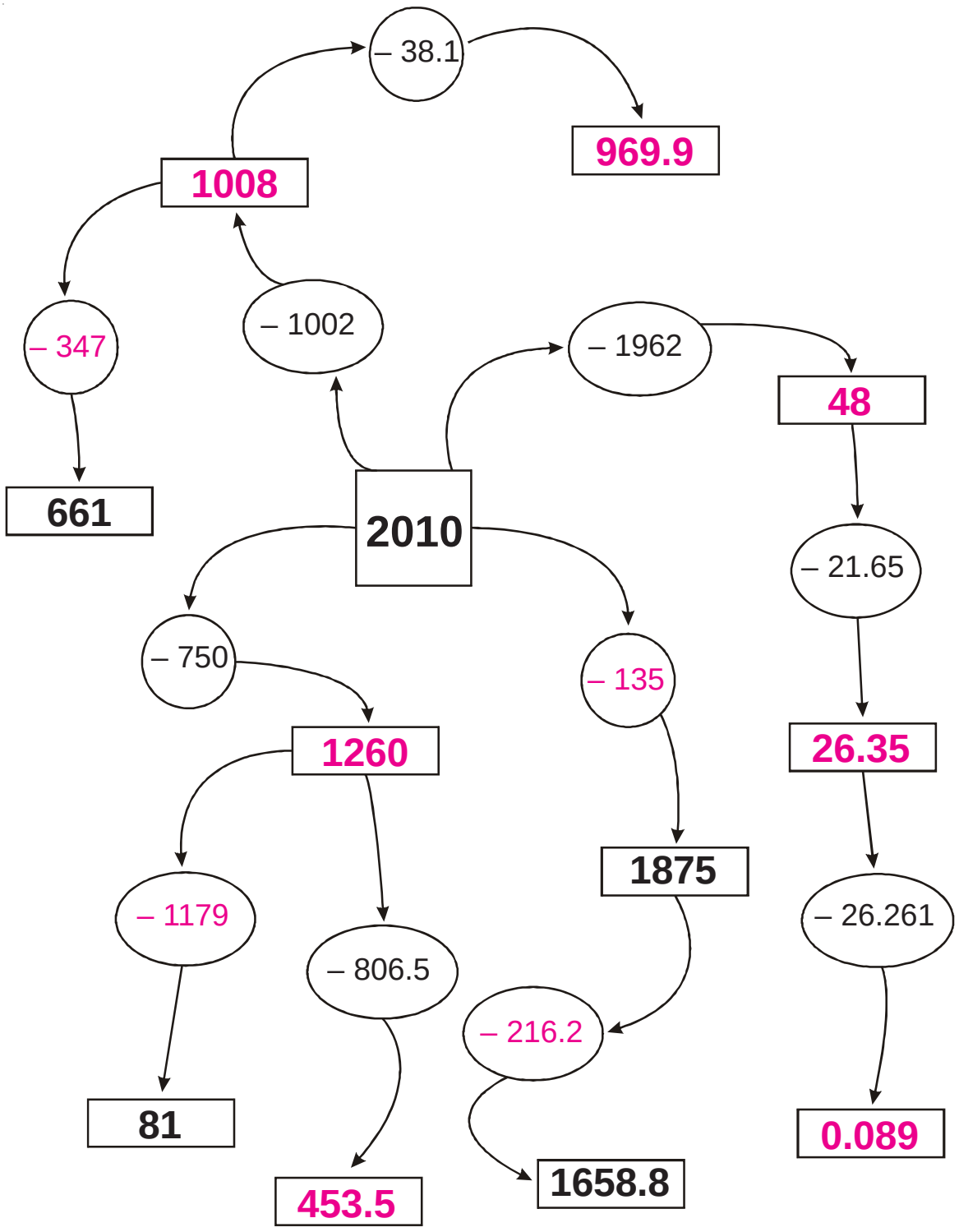
4) 3564 – 1971.6 = 1592.4

5) 800 – 237.62 = 562.38

N14b Subtraction - Decimals

Answers

Complete the boxes and the circles:



N15a

Short Multiplication
Integers
Answers

1) $3 \times 13 = 39$

2) $55 \times 4 = 220$

3) $9 \times 64 = 576$

4) $92 \times 5 = 460$

5) $7 \times 87 = 609$

6) $342 \times 8 = 2736$

7) $6 \times 208 = 1248$

8) $745 \times 4 = 2980$

9) $289 \times 7 = 2023$

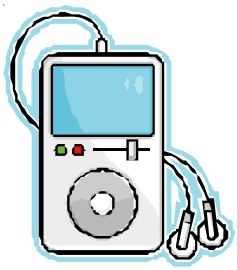
10) $113 \times 9 = 1017$

N15a Short Multiplication Integers *Answers*

Here are some items available from a local shop:


Jacket: £17


Trainers: £56


MP3 player: £32


Television: £499

Work out the cost of:

a) 5 jackets £85

b) 6 MP3 players £192

c) 4 pairs of trainers £224

d) 7 televisons £3493

N15b Short Multiplication Decimals *Answers*

1) $4 \times 1.2 = 4.8$

2) $6.5 \times 3 = 19.5$

3) $9 \times 18.7 = 168.3$

4) $3.6 \times 5 = 18$

5) $7 \times 8.2 = 57.4$

6) $6 \times 1.39 = 8.34$

7) $9.2 \times 8 = 73.6$

8) $8.35 \times 4 = 33.4$

9) $3.62 \times 7 = 25.34$

10) $25.3 \times 9 = 227.7$

N15b Short Multiplication Decimals *Answers*

1) Here are some items available from a local shop:

Milk: £1.20

Bread: £0.65

Lollies: £0.30

Chocolates: £3.99

Work out the cost of:

a) 7 lollies, £2.10

b) 3 bottles of milk, £3.60

c) 2 loaves of bread, £1.30

d) 5 boxes of chocolates. £19.95

2) Rulers cost £0.25 each.
Pens cost £0.45 each.
Kelly buys 3 rulers and 5 pens.

Work out how much she pays.

£3.00

N16 Short Division of Integers *Answers*

1) 786 ÷ 2 = 393

2) 465 ÷ 5 = 93

3) 448 ÷ 8 = 56

4) 552 ÷ 6 = 92

5) 801 ÷ 9 = 89

6) 5976 ÷ 8 = 747

7) 9080 ÷ 5 = 1816

8) 17801 ÷ 7 = 2543

9) 18054 ÷ 6 = 3009

10) 374877 ÷ 9 = 41653

N16 Short Division of Integers *Answers*

1) Here are some items available from a local shop:

Watch: £ 48

Camera: £ 76

Camcorder: £ 315

Laptop: £1299

Work out the unit price of each item knowing that:

7 watches cost £336,

5 cameras cost £380,

4 camcorders cost £1260,

6 laptops cost £7794.

2) a) If 3 chairs cost £17.40,
how much would one of them cost?

£5.80

b) If 7 shirts cost £34.93,
how much would one of them cost?

£4.99

N17a Multiplying and Dividing by powers of 10 - Integers

Answers

1) $75 \times 100 = 7500$

2) $102 \times 10 = 1020$

3) $9 \times 1000 = 9000$

4) $450 \div 10 = 45$

5) $3800 \div 10 = 380$

6) $9700 \div 100 = 97$

7) $60 \times 1000 = 60000$

8) $7000 \div 100 = 70$

9) $210 \times 1000 = 210000$

10) $1050000 \div 1000 = 1050$

N17a Multiplying and Dividing by powers of 10 - Integers
Answers

The table shows the approximate populations of five different places.

Place	Approximate population
London	7 000 000
Glasgow	700 000
Barnsley	70 000
Penkbridge	7 000
High Bickington	700

Complete these sentences:

The population of **Barnsley** is about **10 times** bigger than the population of .....Penkbridge.....

The population of .....London..... is about **100 times** bigger than the population of **Barnsley**.

The population of Glasgow is about .....100..... **times** bigger than the population of **Penkbridge**.

The population of **Barnsley** is about **10 times** smaller than the population of .....Glasgow.....

The population of .....High Bickington..... is about **100 times** smaller than the population of **Barnsley**.

The population of High Bickington is about .....10..... **times** smaller than the population of **Penkbridge**.

N17b Multiplying and Dividing by powers of 10 - Decimals

Answers

1) $3.6 \times 10 = 36$

2) $82.9 \times 100 = 8290$

3) $0.5 \times 1000 = 500$

4) $47 \div 10 = 4.7$

5) $106.4 \div 10 = 10.64$

6) $9.9 \div 100 = 0.099$

7) $6.2 \times 1000 = 6200$

8) $70 \div 1000 = 0.07$

9) $0.035 \times 10000 = 350$

10) $0.01 \div 100 = 0.0001$

N17b Multiplying and Dividing by powers of 10 - Decimals

Answers

1) Fill in the missing box in each case.

a) 12 → ×100 → **1200**

b) 7.5 → ÷10 → **0.75**

c) 83.1 → **×100** → 8310

d) 0.9 → **×1000** → 900

e) 662 → **÷10** → 66.2

f) 540 → **÷100** → 5.4

g) 0.6 → **÷100** → 0.006

h) **7370** → ÷100 → 73.7

i) **0.018** → ×10 → 0.18

j) **0.104** → ×1000 → 104

2) Using the fact below:

$$365 \times 17 = 6205$$

Work out the following

a) 36.5 × 17 = **620.5**

b) 36.5 × 1.7 = **62.05**

c) 365 × 170 = **62050**

d) 3650 × 1.7 = **6205**

e) 62.05 ÷ 17 = **3.65**

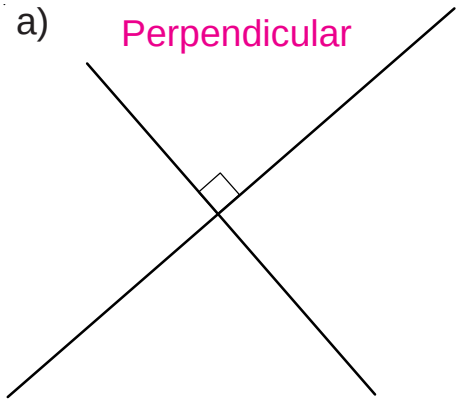
f) 6.205 ÷ 36.5 = **0.17**

G1 Basic Geometric Definitions

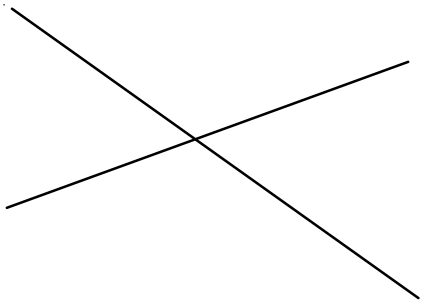
Answers

1) Which of these diagrams show perpendicular lines?

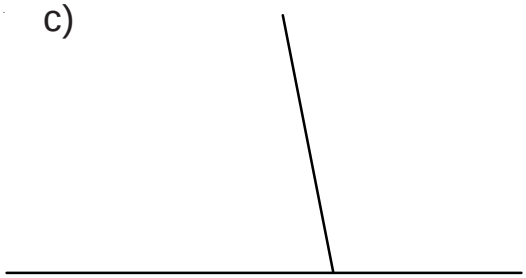
a) Perpendicular



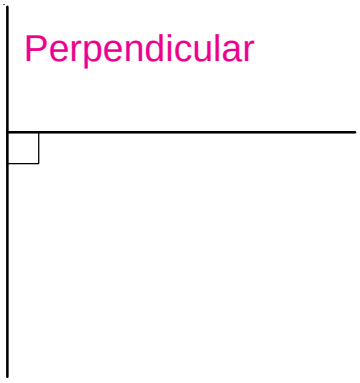
b)



c)



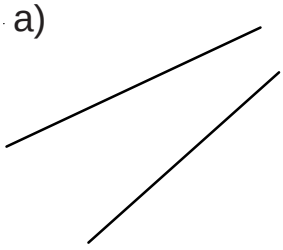
d) Perpendicular



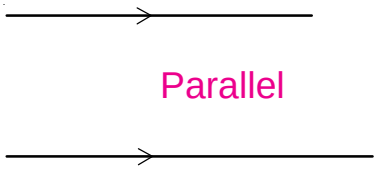
2) Perpendicular lines meet at what angle? 90 degrees

3) Which of these diagrams show parallel lines?

a)

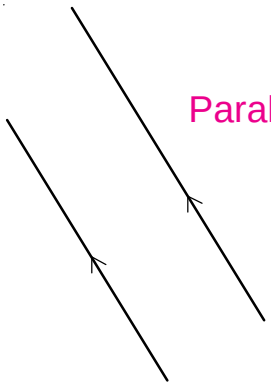


b)



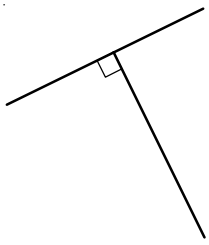
Parallel

c)



Parallel

d)

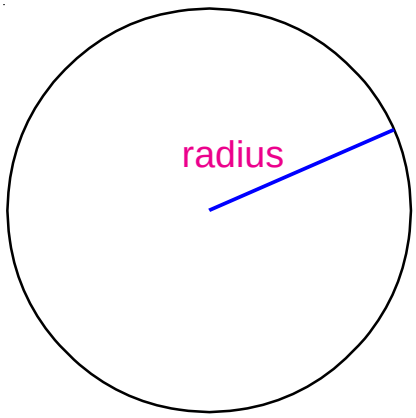


G2 Properties of Circles

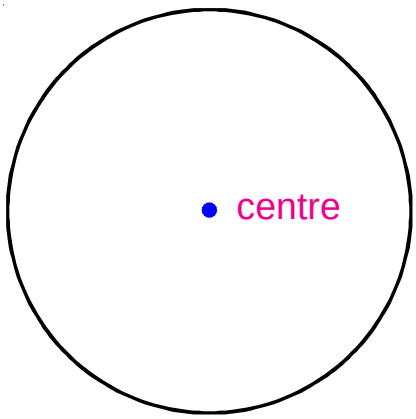
Answers

1) Name the part of the circle shown on each diagram.

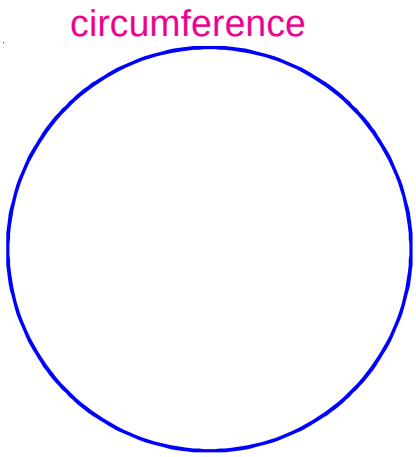
a)



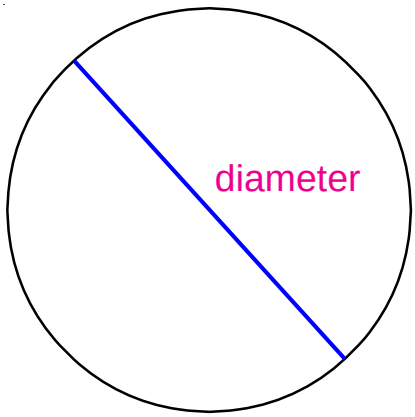
b)



c)



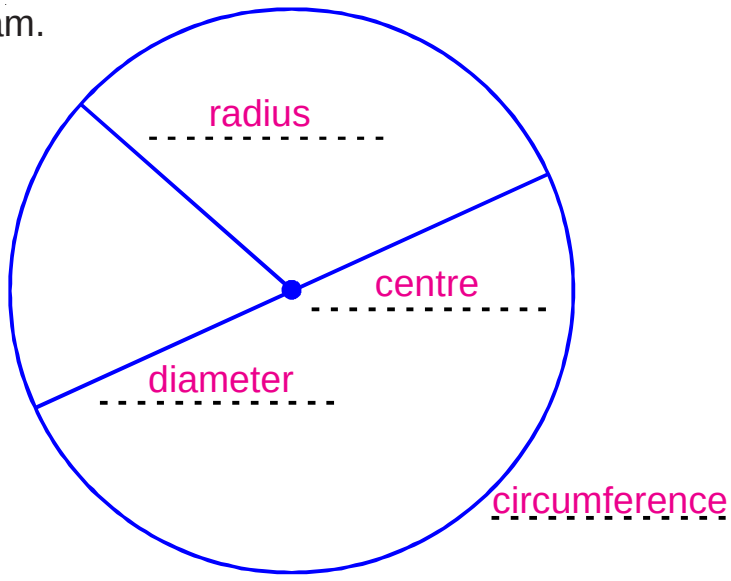
d)



2) What is the relationship between the radius and the diameter of a circle?

The radius is half the length of the diameter.

3) Label this diagram.

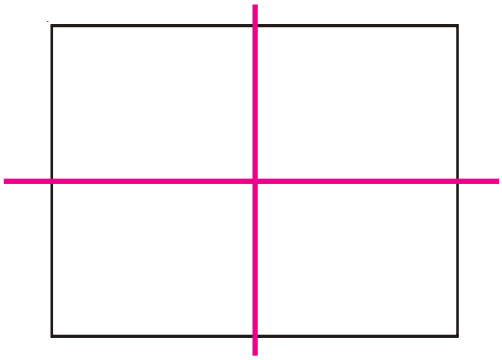


G3 Line Symmetry

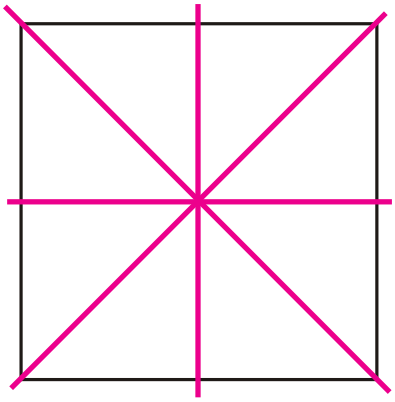
Answers

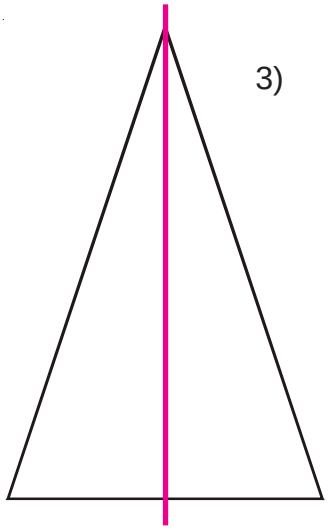
Look at each shape, read the description and then draw in all the lines of symmetry.

1) **Rectangle**
Two lines of symmetry



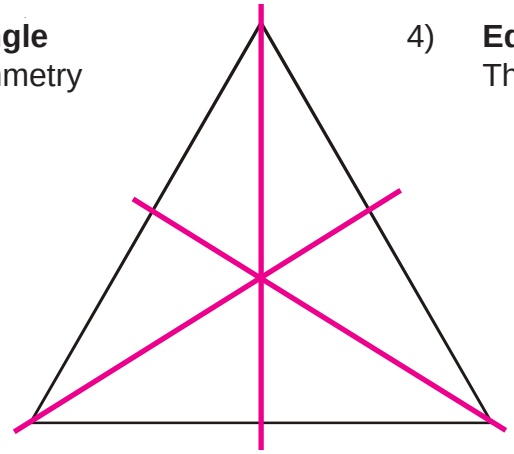
2) **Square**
Four lines of symmetry



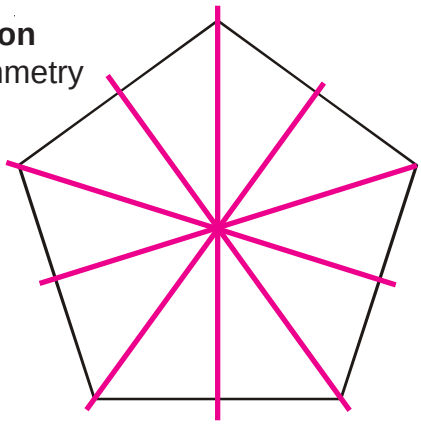


3) **Isosceles triangle**
One line of symmetry

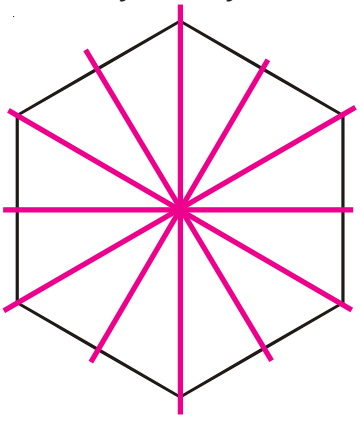
4) **Equilateral triangle**
Three lines of symmetry



5) **Regular pentagon**
Five lines of symmetry



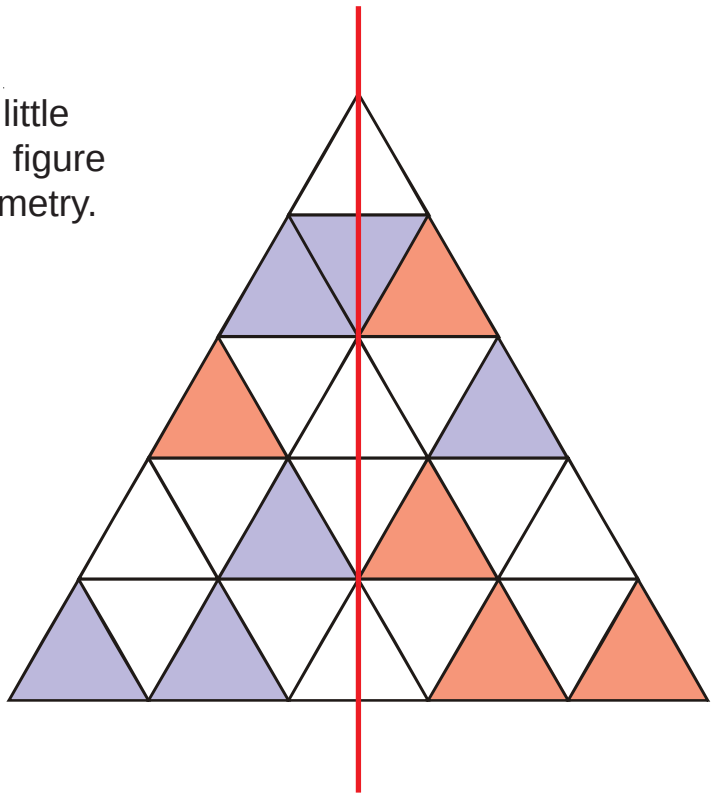
6) **Regular hexagon**
Six lines of symmetry



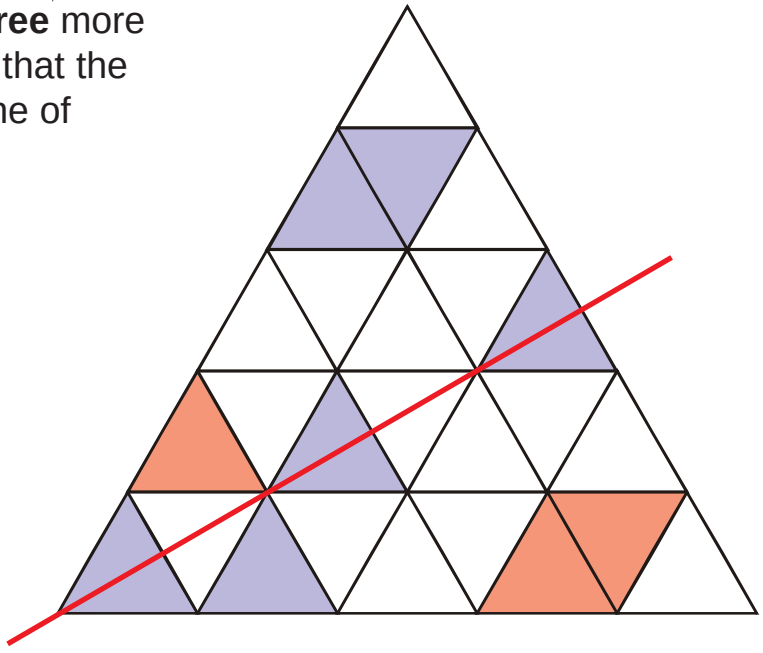
G3 Line Symmetry

Answers

1) Shade in **five** more little triangles so that the figure has one line of symmetry.



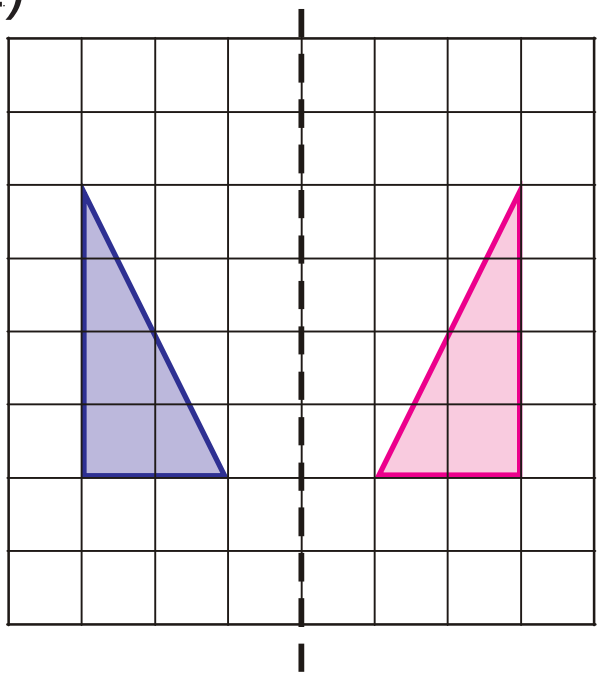
2) Shade in **just three** more little triangles so that the figure has one line of symmetry.



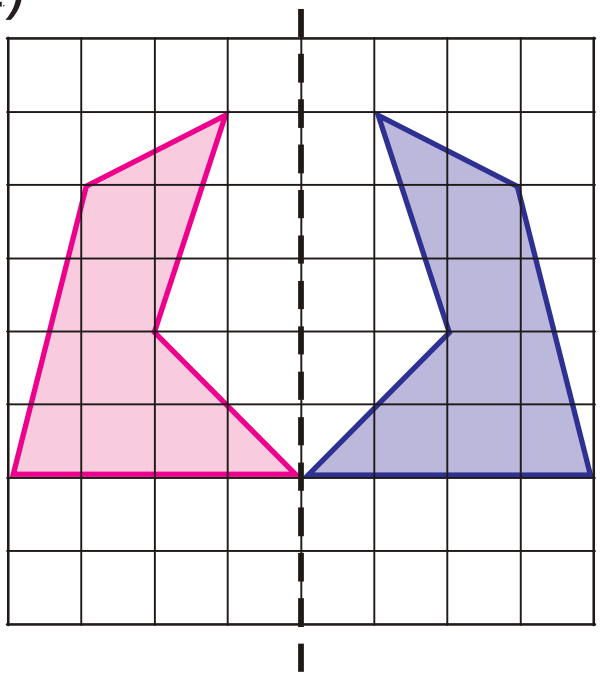
G4a Reflection
Horizontal and Vertical Mirror Lines
Answers

In all four questions, reflect the shaded shape in the dotted mirror line.

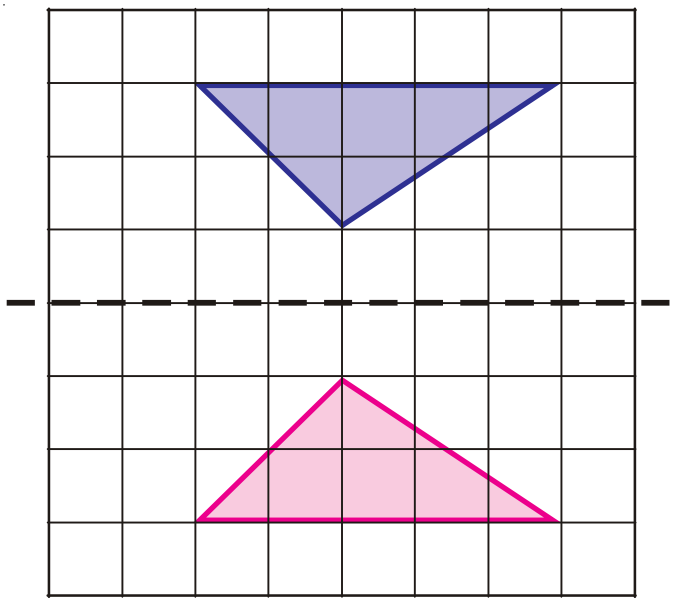
1)



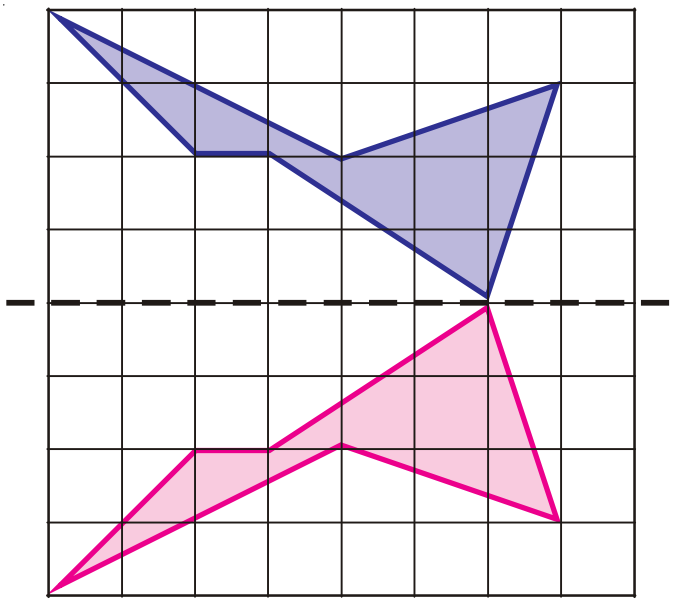
2)



3)

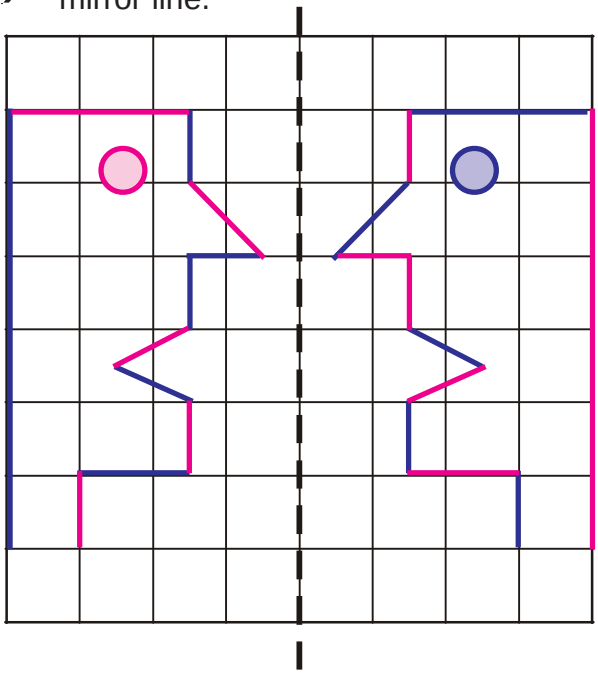


4)

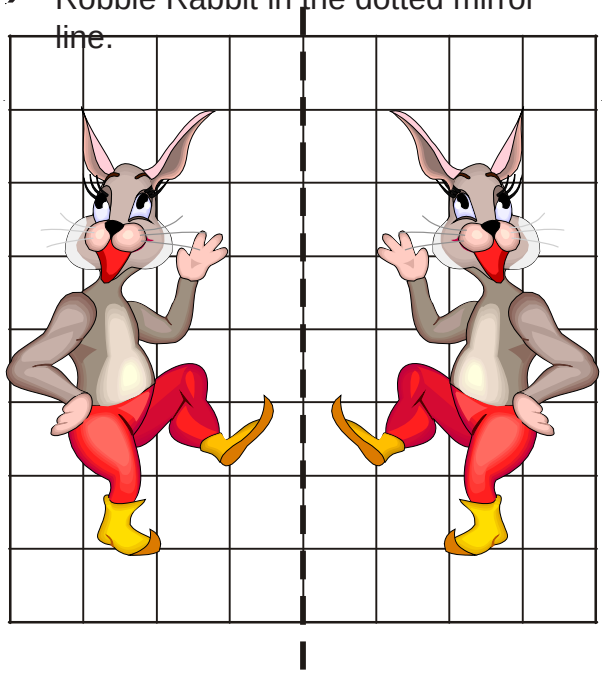


G4a Reflection
Horizontal and Vertical Mirror Lines
Answers

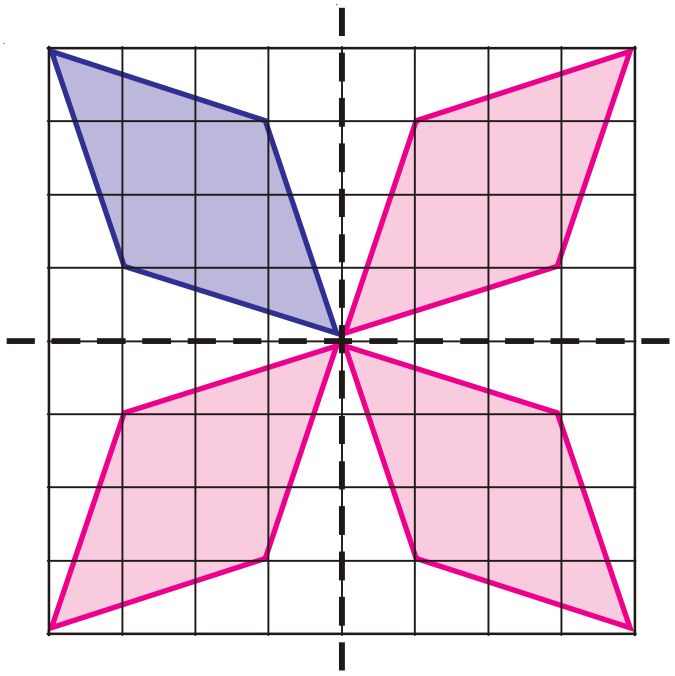
1) Reflect every line in the dotted mirror line.



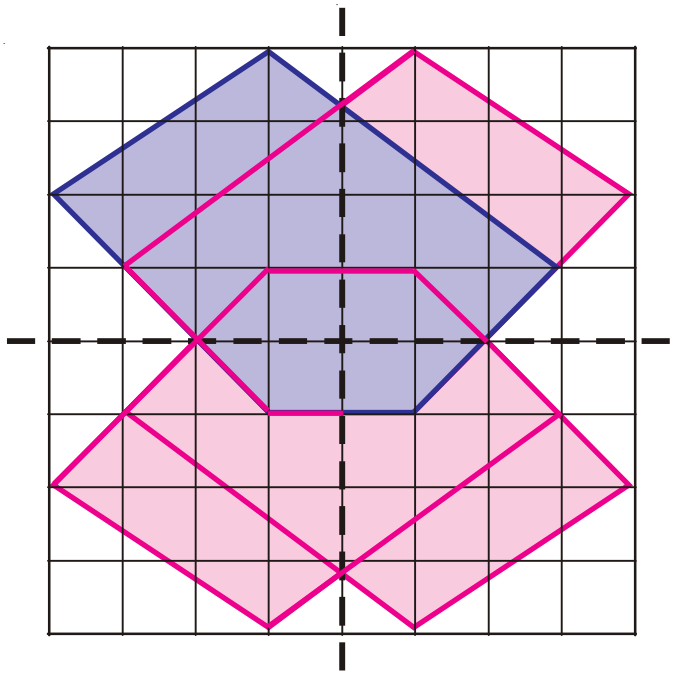
2) Use the grid to help you reflect Robbie Rabbit in the dotted mirror line.



3) Reflect the shape in the vertical mirror line.
Then, reflect both shapes in the horizontal mirror line.



4) Reflect the shape in the vertical mirror line.
Then, reflect both shapes in the horizontal mirror line.

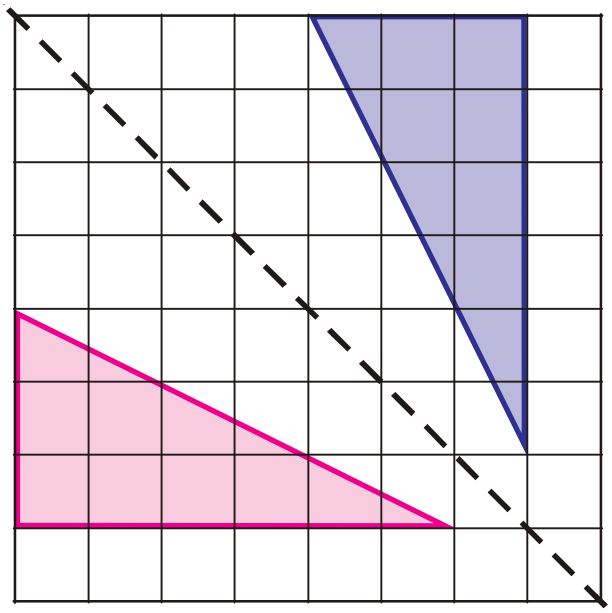


G4b

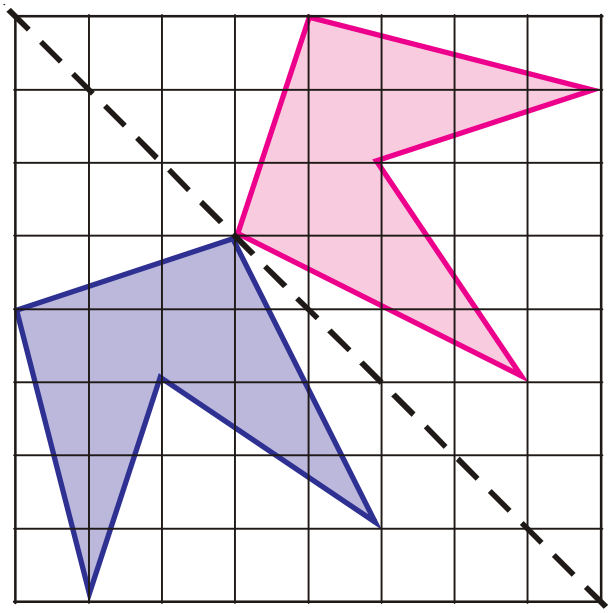
Reflection
Diagonal Mirror Lines
Answers

In all four questions, reflect the shaded shape in the dotted mirror line.

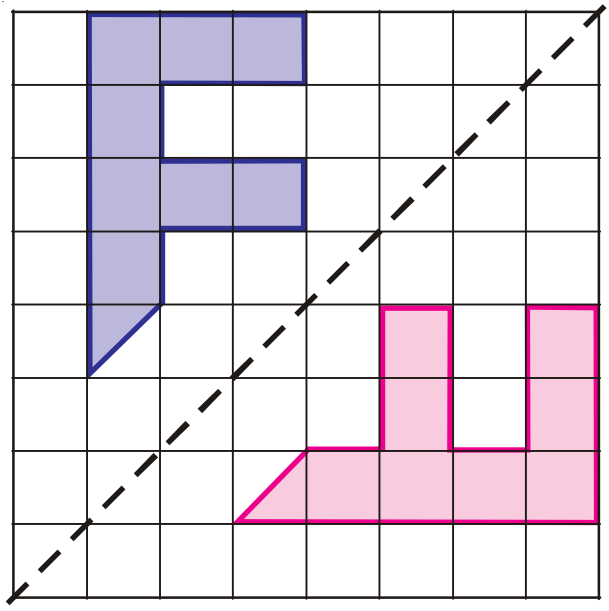
1)



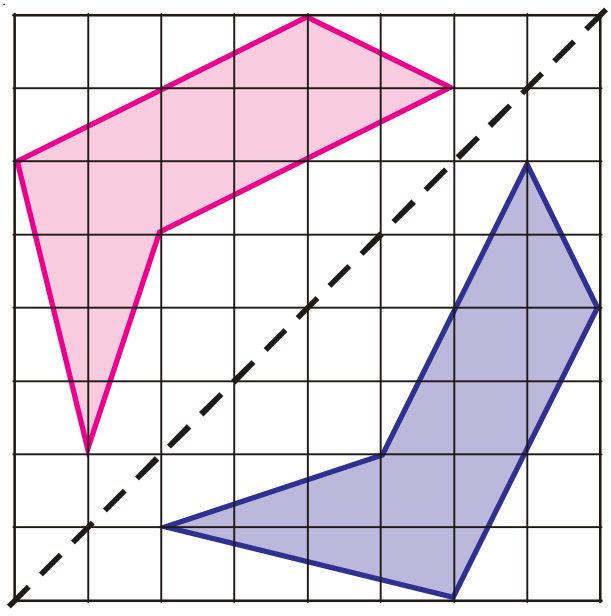
2)



3)



4)

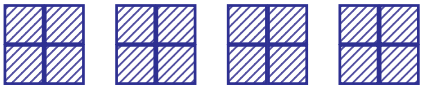
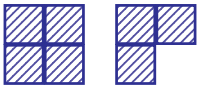


S1a Pictograms - Interpreting

Answers

An art gallery uses a pictogram to show the number of paintings sold over a 5 week period.

Key:  = 4 paintings

Week 1	
Week 2	
Week 3	
Week 4	
Week 5	

a) How many paintings were sold in week 1? 12

b) In which week was the least number of paintings sold? Week 5

c) How many paintings were sold in week 3? 10

d) How many paintings were sold in week 4? 7

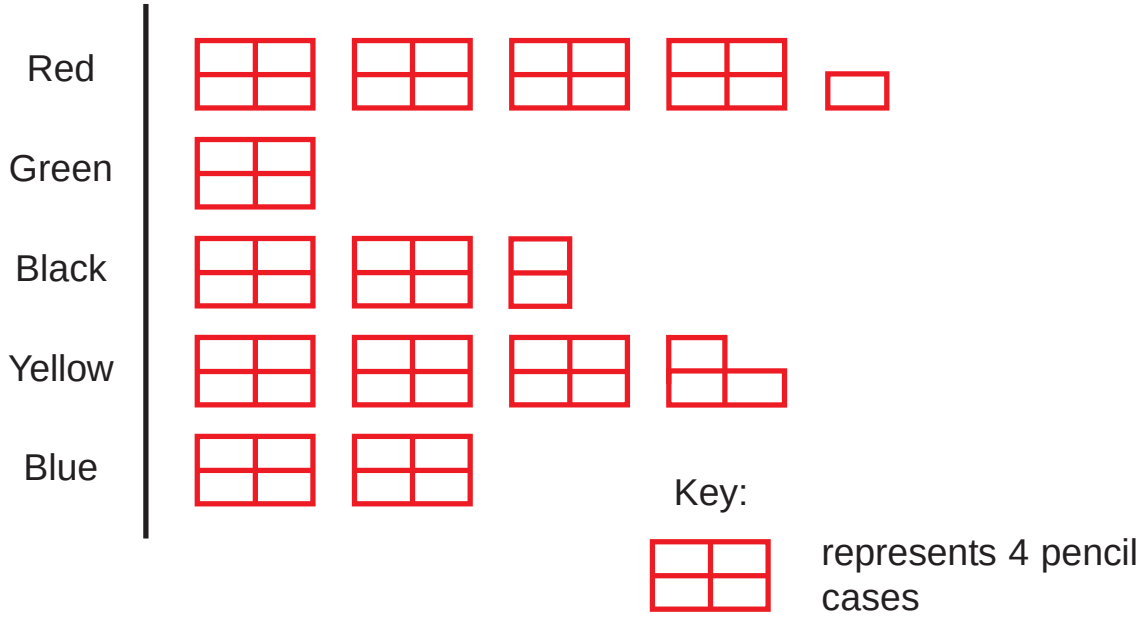
e) How many more paintings were sold in week 2 compared with week 5? 12

f) How many paintings were sold altogether in the five weeks? 49

S1b Pictograms - Drawing

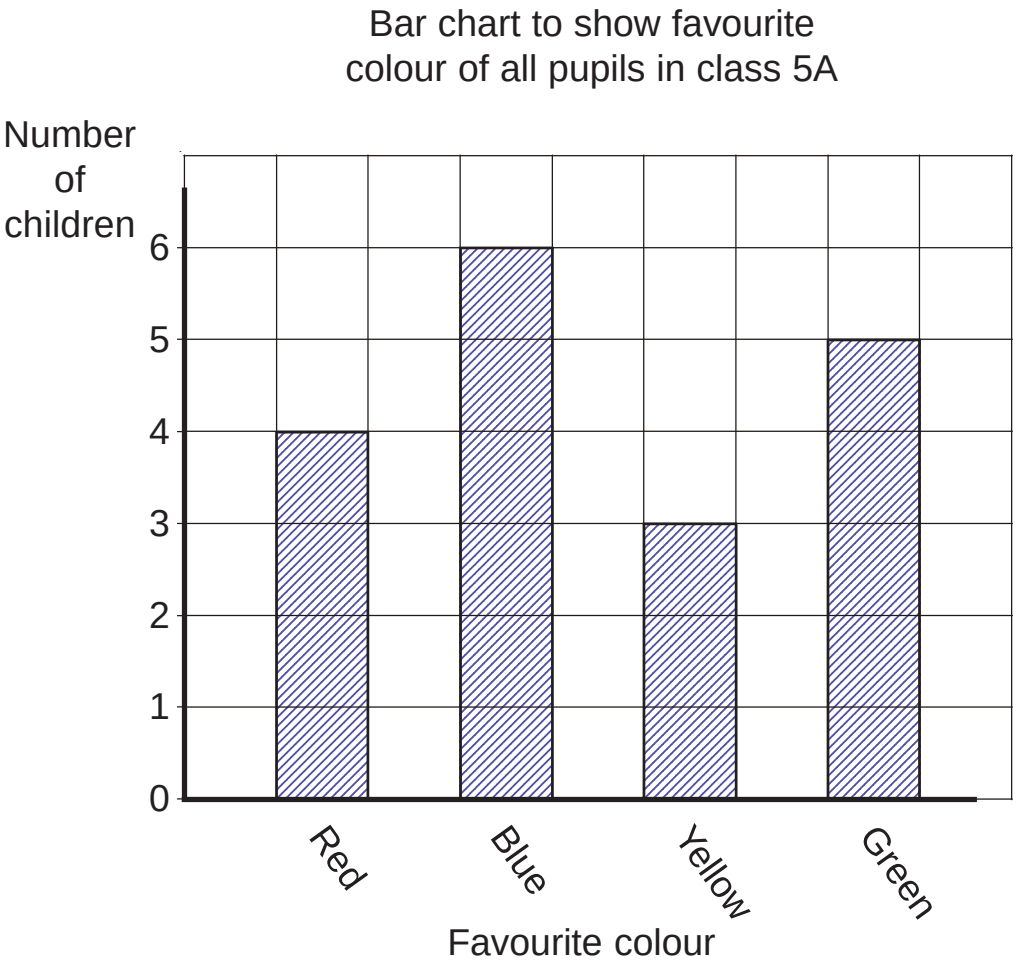
Answers

Number of different colour pencil cases



S2a Bar Charts - Interpreting

Answers



a) How many children chose green as their favourite colour? 5

b) Which was the least favourite colour in the class? Yellow

c) How many more children chose blue than red? 2

d) How many children are in class 5A? 18

S2b Bar Charts - Drawing

Answers