Divide and Conquer
Division Strategies

AC
EA
AA
AM
AP

Lucky Dip?

We are learning to practise divisibility rules.

15 18
400 99
108
87 300
35 63
90 70
64 200
45 24
12 93 125
75

Exercise 1

Find the numbers from above that are:

1) Divisible by 100
2) Divisible by 10
3) Divisible by 5
4) Divisible by 2
5) Divisible by 3

AC
EA
AA
AM
AP

Division Strategies

Pick a Pair

We are learning to make correct division sentences.

Exercise 2

Use the numbers written below to make a correct maths sentence.

3 4 5 6 7 8 9 40 60 70 80

Do all the work in your head.
Show them like the example below.

Question: 90 ÷ 10 = ☐ Answer: 90 ÷ 10 = 5

1) 80 ÷ 10 = ☐

2) ☐ ÷ ☐ = 16

3) 120 ÷ 20 = ☐

4) 4,900 ÷ ☐ = ☐

5) ☐ ÷ 20 = 3

6) ☐ ÷ ☐= 2

7) 72 ÷ ☐ = 8

8) 120 ÷30 = ☐

9) ☐ ÷ 10 = 3

10) 420 ÷ ☐ = 60

11) 180 ÷ 60 = ☐

12) ☐ ÷ ☐ = 8

13) 32 ÷ 8 = ☐

14) 560 ÷ ☐ = 80

15) 210 ÷ 70 = ☐

16) 450 ÷ ☐ = 50

17) 160 ÷ ☐ = 4

18) 240 ÷☐ = 40

19) 60 ÷ ☐ = 15

20) 4,800 ÷ ☐ = 60

Division Strategies

AC
EA
AA
AM
AP

Find the Family

We are learning to link multiplication and division facts.

Exercise 3

For each of the following groups of numbers write as many division facts as you can

For example, using {10, 2, 30, 120, 4, 5}

120 ÷ 30 = 4 10 ÷ 2 = 5 4 ÷ 2 = 2

1) {40, 20, 10, 8, 5, 4, 2}

2) {3, 4, 5, 6, 10, 15, 20, 60}

3) {100, 50, 25, 5, 4, 2}

4) {120, 40, 10, 30, 20, 4, 6, 5, 2, 24, 12, 3, 60}

5) {2, 4, 5, 8, 10, 16, 20, 40, 80}

6) {2, 5, 7, 10, 14, 25, 35}

7) {2, 4, 5, 8, 16, 20, 32, 40, 64, 80}

8) {180, 30, 90, 20, 10, 15, 18, 9, 6, 5, 3, 2}

9) {64, 16, 8, 40, 80, 2, 5, 4, 32, 160, 10}

10) {90, 60, 45, 15, 5, 3, 4, 2, 30, 9, 10}

AC
EA
AA
AM
AP

Division Strategies

Multiplication Squares

We are practising using reversibility and factors of numbers up to 100.

Exercise 4

Fill in the gaps in these multiplication squares.

1)

x				2
			18	
	40			16
4		16		
	35		42	

(2)

x	10		3	
		15		
8				32
9		45		
				24

(3)

x	4			
		6	18	
		24		8
	12			
	20		45	

4)

x		4		3
		36		
	14			6
6			36	
		20		

(5)

x	7			
			15	10
	28	16		
			9	
		32	24	

(6)

x				6
	35			
2	14		20	
		12		
	63	27		

7)

x				
		8		9
	18	48		
4				36
	21		28	

(8)

x				
	64		16	
	56			
			8	40
		18	12	

(9)

x				
		15		12
	12		16	
		25		
	42			28

AC
EA
AA
AM
AP

Division Strategies

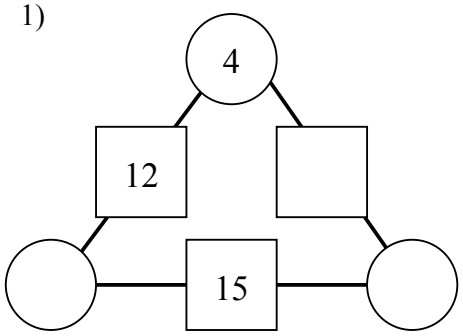
Dividagons

We are practising to use factors.

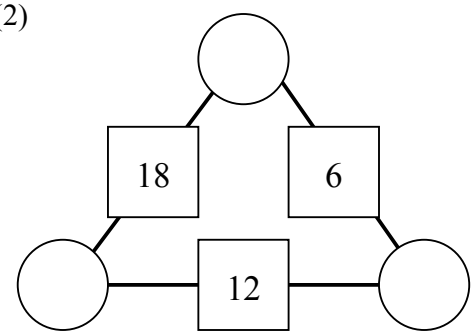
Exercise 5

Complete the triangle. The number in each square is the product of the two numbers in the circles on either side.

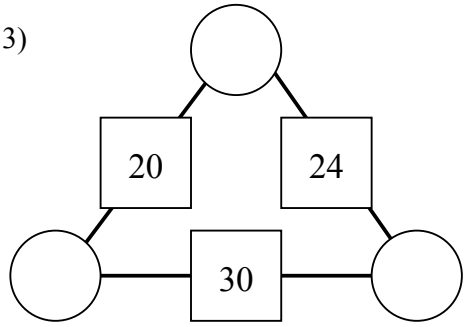
1)



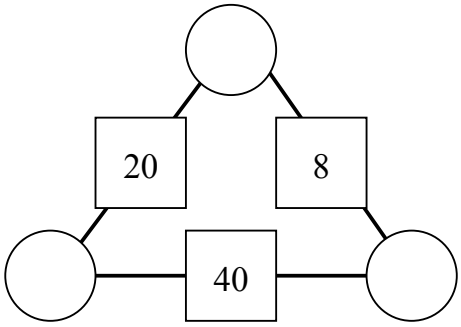
(2)



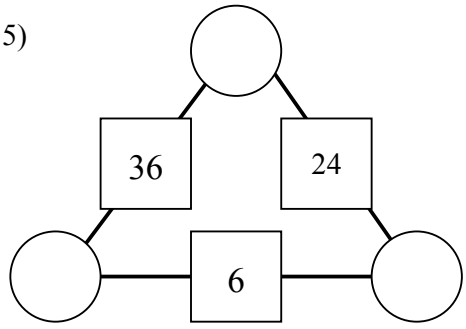
3)



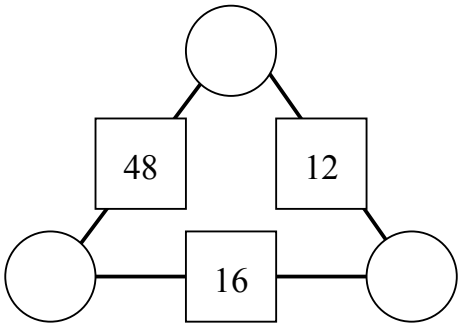
(4)



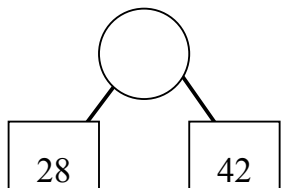
5)



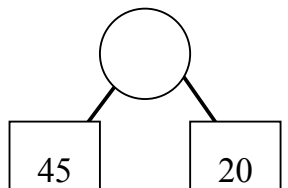
(6)



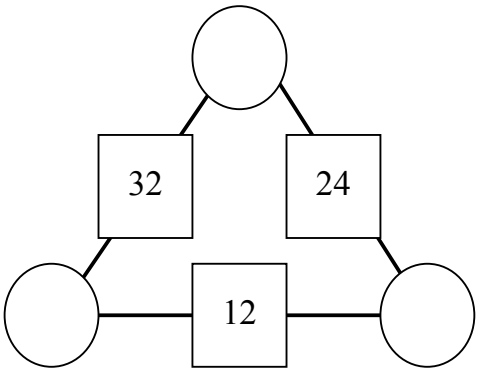
7)



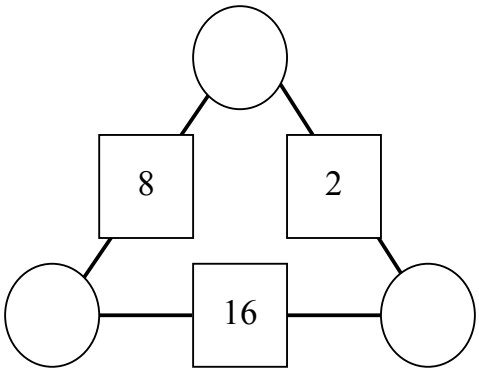
(8)



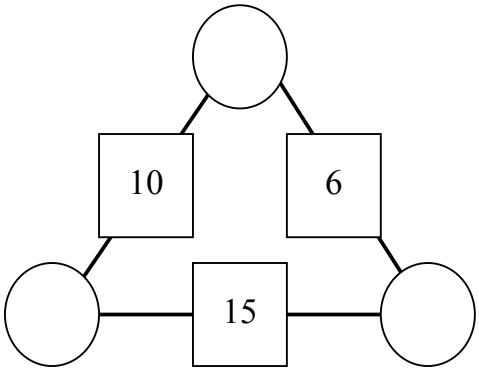
9)



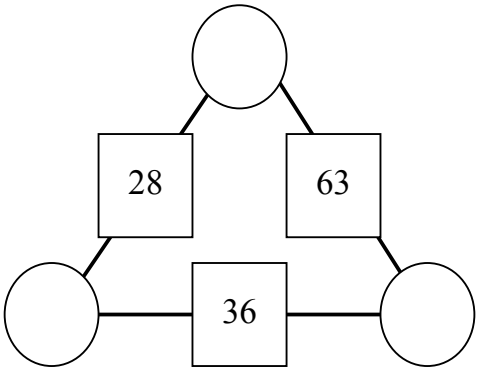
(10)



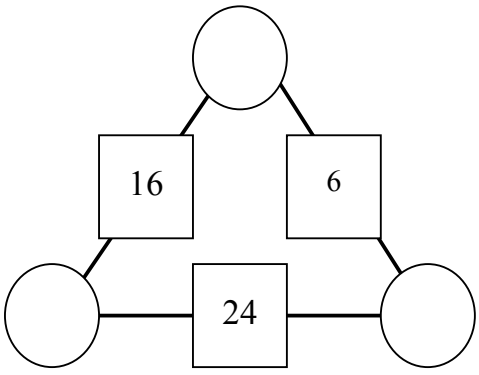
11)



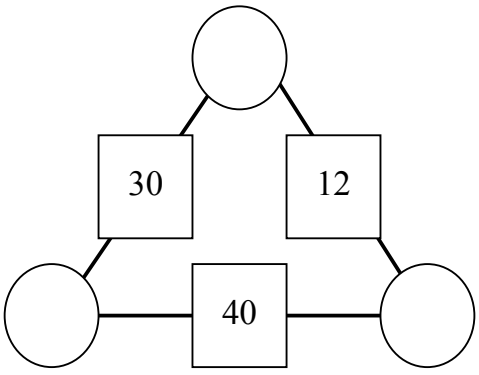
(12)



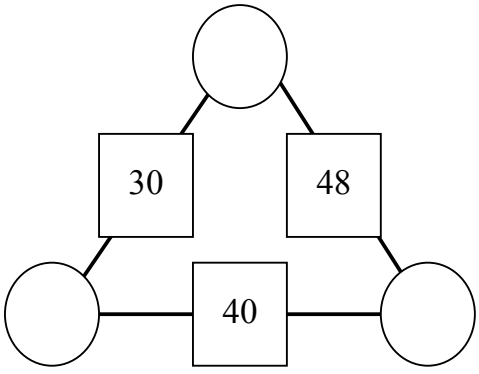
13)



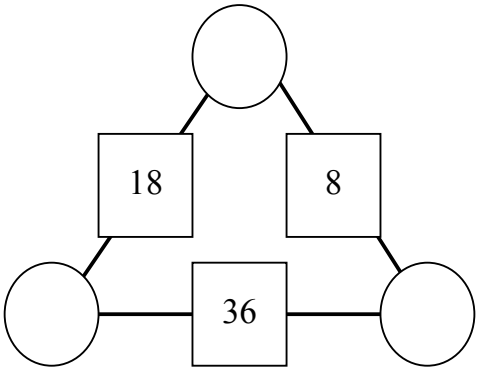
(14)



15)



(16)



Division Strategies

AC
EA
AA
AM
AP

Multiples and Factors

We are learning divisibility rules.

Exercise 6

1) Using a hundreds board do the following:
   a) Place a single coloured counter over the multiples of two.
   b) Take another coloured counter and place over the multiples of four.
   c) Describe what you notice?
   d) What is the lowest common multiple of two and four?
   e) What is the highest common factor of two and four?
2) On another hundreds board repeat all of question one for the multiples of three and nine. Use different coloured counters.
3) On a third hundreds board repeat question one for the multiples of two and nine. Use different coloured counters.

4) Using a hundreds board do the following:
   f) Place a single coloured counter over the multiples of three.
   g) Take another coloured counter and place over the multiples of six.
   h) Describe what do notice?
   i) What is the lowest common multiple of three and six?
   j) What is the highest common factor of three and six?

5) On another hundreds board repeat all of question five for the multiples of four and eight. Use different coloured counters.
6) On a third hundreds board repeat all of question five for the multiples of three and eight. Use different coloured counters.

7) Explore the relationship between the lowest common multiple and the highest common factor for each pair of numbers.

8) Use the four digits in part a) and b) to make the answer to the following division problem a whole number.

☐ ☐ ☐ ÷ ☐

a) 1, 3, 5, 9 (b) 2, 4, 6, 8

Division Strategies

AC
EA
AA
AM
AP

Fun with Factors

We are practicing using division facts to solve problems.

Exercise 7

Solve the following problems:

1) Find some numbers that have all their factors except 1, even. Describe the set of numbers.

2) Find some numbers that have exactly half their factors even. Describe the set of numbers.

3) What is the smallest number that leaves a remainder of 1 when divided by 2, 3, 4, 5, 6, 8, 10 but no remainder when it is divided by 11?

4) What is the smallest number that leaves a remainder of 1 when it is divided by the first three prime numbers but no remainder when it is divided by the fourth prime number?

5) Two numbers multiply to give an answer of 1 000 000. Neither of the numbers contains any zeros. What are the two numbers?

6) There are some rabbits and some rabbit hutches. If one rabbit is put in each rabbit hutch, one rabbit is left over. If two rabbits are put in each rabbit hutch, one hutch is left empty. How many rabbits and how many hutches?

7) There are some rabbits and some rabbit hutches. If seven rabbits are put in each rabbit hutch, one rabbit is left over. If nine rabbits are put in each rabbit hutch, one hutch is left empty. How many rabbits and how many hutches?

8) Use the digits 0, 1, 2, 3, 4, 5, 6, 7, 8 and 9 to form five 2 digit numbers which are all multiples of three.

Division Strategies

AC
EA
AA
AM
AP

Do it in your head

We are practising doing division mentally and recognising 'nice' numbers.

Exercise 8

LOOK at the example and SAY the answer.

1)	248 ÷ 2	(2)	180 ÷ 6
3)	999 ÷ 9	(4)	250 ÷ 5
5)	482 ÷ 2	(6)	405 ÷5
7)	369 ÷ 9	(8)	246 ÷ 6
9)	497 ÷ 7	(10)	480 ÷ 8
11)	728 ÷ 8	(12)	842 ÷ 2
13)	357 ÷ 7	(14)	300 ÷ 6
15)	560 ÷ 8	(16)	720 ÷ 9
17)	963 ÷ 3	(18)	300 ÷ 3
19)	108 ÷ 2	(20)	355 ÷ 5
21)	368 ÷ 4	(22)	642 ÷ 2
23)	888 ÷ 8	(24)	484 ÷ 4
25)	639 ÷ 3	(26)	486 ÷ 6
27)	816 ÷ 4	(28)	369 ÷ 3
29)	129 ÷ 3	(30)	648 ÷ 8

Division Strategies

Division by Partitioning

AC
EA
AA
AM
AP

We are learning to use the distributive property for division.

Exercise 9

Ruwani knows she can work out the answer to 72 ÷ 4 by breaking 72 into two parts that can be easily divided by 4.

72 ÷ 4 = 40 ÷ 4 + 32 ÷ 4
= 10 + 8
= 18

What number goes in the ☐?

1) 36 ÷ 3 + 60 ÷ 3 = ☐ ÷ 3

(2) 60 ÷ 6 + 18 ÷ 6 = ☐ ÷ 6

3) 30 ÷ 3 + 24 ÷ 3 = ☐ ÷ 3

(4) ☐ ÷ 4 = 100 ÷ 4 + 12 ÷ 4

5) ☐ ÷ 5 = 100 ÷ 5 + 35 ÷ 5

(6) 70 ÷ 7 + 21 ÷ 7 = ☐ ÷ 7

7) 60 ÷ 3 + 24 ÷ 3 = ☐ ÷ 3

(8) 90 ÷ 9 + 54 ÷ 9 = ☐ ÷ 9

9) 80 ÷ 8 + 40 ÷ 8 = ☐ ÷ 8

(10) 27 ÷ 3 + 30 ÷ 3 = ☐ ÷ 3

11) ☐ ÷ 4 = 120 ÷ 6 + 12 ÷ 6

(12) ☐ ÷ 4 = 100 ÷ 4 + 132 ÷ 4

Use Ruwani's method to calculate the following:

1) 68 ÷ 4

(2) 128 ÷ 4

(3) 145 ÷ 5

4) 102 ÷ 6

(5) 117 ÷ 9

(6) 184 ÷ 8

7) 76 ÷ 4

(8) 87 ÷ 3

(9) 108 ÷ 6

10) 48 ÷ 3

(11) 90 ÷ 6

(12) 168 ÷ 7

Division Strategies

AC
EA
AA
AM
AP

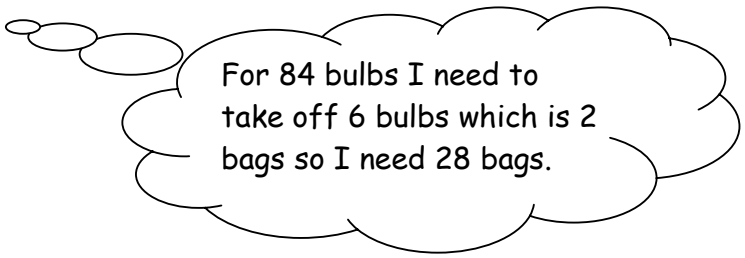
Division Using Tidy Numbers

We are learning to divide by rounding to a tidy number and then compensating.

Exercise 10

Jenna is putting tulip bulbs into bags for sale at the market. She has to put three bulbs into each bag. She has 84 bulbs and wants to know how many bags she will need.
Jenna knows that if she had 90 bulbs she would need 30 bags since 90 ÷ 3 = 30.

She then thinks



So 84 ÷ 3 = 90 ÷ 3 – 6 ÷ 3

Use Jenna's method to calculate the following:

1)	54 ÷ 3	(2)	72 ÷ 4	(3)	114 ÷ 6
4)	76 ÷ 4	(5)	111 ÷ 3	(6)	291 ÷ 3
7)	392 ÷ 4	(8)	495 ÷ 5	(9)	594 ÷ 6
10)	145 ÷ 5	(11)	87 ÷ 3	(12)	133 ÷ 7

Division Strategies

AC
EA
AA
AM
AP

Dividing and Dividing

We are learning to divide by dividing by a pair of factors of the divisor.

Exercise 11

Task 1

Tevita knows he can work out the answer to 72 ÷ 4 by dividing by 2 and dividing by 2 again.
72 ÷ 2 = 36 and 36 ÷ 2 = 18
so 72 ÷ 4 = 18

Use Tevita's method to calculate the following:

1)	300 ÷ 4	(2)	128 ÷ 4	(3)	92 ÷ 4
4)	184 ÷ 4	(5)	500 ÷ 4	(6)	104 ÷ 4
7)	140 ÷ 4	(8)	56 ÷ 4	(9)	42 ÷ 4
10)	90 ÷ 4	(11)	66 ÷ 4	(12)	700 ÷ 4

Carla knows that dividing by 6 is the same as dividing by 3 and then dividing the answer by 2.
To work out 90 ÷ 3 she works out 90 ÷ 3 = 30 then 30 ÷ 2 = 15 so 90 ÷ 3 = 15

She wonders if she does the division in a different order whether she will get the same answer.
90 ÷ 2 = 45 and 45 ÷ 3 = 15
so 90 ÷ 6 = 15

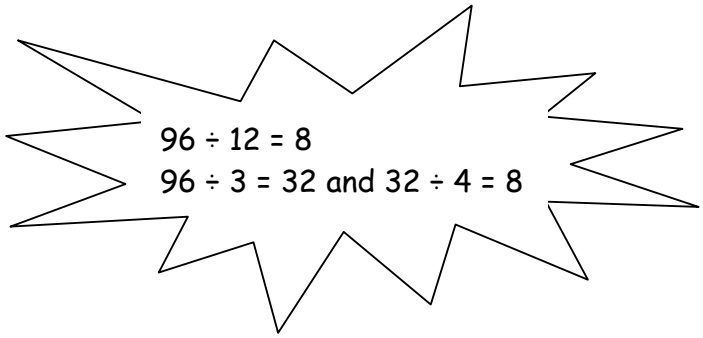
Task 2

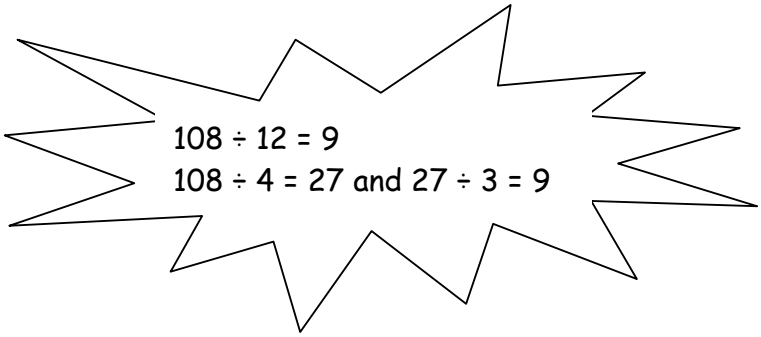
Use Carla's method to calculate the following:

(Sometimes you will find it easier to divide by 3 first and other times it might be
easier to divide by 2 first.)

1)	$96 \div 6$	(2)	$150 \div 6$	(3)	$84 \div 6$
4)	$132 \div 6$	(5)	$450 \div 6$	(6)	$336 \div 6$

Dividing by 2 and then dividing by 2 again is the same as dividing by 4.
Dividing by 3 and then dividing by 2 is the same as dividing by 6.
Ashley wonders if this rule works for other numbers as well.
Ashley knows that $120 \div 12 = 10$ so he wonders if he will get the same answer if he divides by 3 and then divides by 4 since $3 \times 4 = 12$.
$120 \div 3 = 40$ and $40 \div 4 = 10$ so it seems to work.
He decides to check it out for some other numbers he knows as well.





So dividing by 3 and then dividing by 4 **is the same as** dividing by 12.

Task 3

What number goes in the box?

1)	$155 \div 5 \div 2 = 155 \div \square$	(2)	$114 \div 2 \div 2 = 114 \div \square$

3) $180 \div 3 \div 4 = 180 \div \square$

(4) $128 \div 2 \div 2 \div 2 = 128 \div \square$

5) $144 \div 2 \div 3 = 144 \div \square$

(6) $243 \div 3 \div 3 = 243 \div \square$

7) $125 \div 5 \div 5 = 125 \div \square$

(8) $450 \div 3 \div 2 = 450 \div \square$

9) $600 \div 2 \div 2 \div 3 = 600 \div \square$

(10) $130 \div 10 \div 2 = 130 \div \square$

Division Strategies

AC
EA
AA
AM
AP

Div 4 Grid

We are learning to match word problems to number sentences.

Exercise 12

There are 45 nuts in a pack. How many will Ali, Bill and Cam get each if the nuts are shared equally?	$45 \div 3 = \square$
$3 \times \square = 45$	**They will get 15 nuts each.**

Bill has nine times as many cherries as Ben. If Bill has 180 cherries, how many does Ben have?	**$180 \div 9 = \square$**
$9 \times \square = 180$	**Ben has 20 cherries**

Nuts are packed in 45g bags. How many bags can be made from a bin containing 900g of nuts?	**$900 \div 45 = \square$**
$45 \times \square = 900$	**There will be 20 bags of nuts.**

Paul can open 40 oysters in 4 minutes. How many can he open in 1 minute?	**$40 \div 4 = \square$**
$4 \times \square = 40$	**He can open 10 oysters in one minute.**

Kelly has 200 cherries and Cara has 25. How many times more cherries does Kelly have than Cara?	**$200 \div 25 = \square$**
$25 \times \square = 200$	**Kelly has 8 times as many cherries as Cara.**

How many pages can you type in 90 minutes if you type one page every 3 minutes?	**$90 \div 3 = \square$**
$3 \times \square = 90$	**You will type 30 pages.**

Division Strategies

AC
EA
AA
AM
AP

If you know…

We are practising using the division facts we know to work out related facts.

Exercise 13

1) Jane knows that 224 ÷ 14 = 16
Using this, find the value of
a) 224 ÷ 7 (b) 224 ÷ 28 (c) 112 ÷ 14
d) 448 ÷ 14 (e) 224 ÷ 16 (f) 112 ÷ 16

2) Jim knows that 264 ÷ 4 = 66
Using this, what is the value of
a) 264 ÷ 66 (b) 264 ÷ 8 (c) 264 ÷ 12
d) 264 ÷ 44 (e) 132 ÷ 4 (f) 528 ÷ 4

3) Michael knows that 288 ÷ 18 = 16
Using this, what is the value of
a) 288 ÷ 16 (b) 288 ÷ 9 (c) 288 ÷ 36
d) 144 ÷ 18 (e) 288 ÷ 6 (f) 288 ÷ 12

4) Karen knows that 270 ÷ 18 = 15
Using this, what is the value of
a) 270 ÷ 9 (b) 540 ÷ 18 (c) 270 ÷ 6
d) 270 ÷ 36 (e) 270 ÷ 15 (f) 135 ÷ 15

5) Pauline knows that 252 ÷ 18 = 14
Using this, what is the value of
a) 252 ÷ 9 (b) 252 ÷ 36 (c) 504 ÷ 18
d) 504 ÷ 36 (e) 252 ÷ 14 (f) 126 ÷ 18

6) Yung knows that 286 ÷ 11 = 26
Using this, what is the value of
a) 286 ÷ 22 (b) 143 ÷ 11 (c) 286 ÷ 44
d) 286 ÷ 26 (e) 286 ÷ 13 (f) 143 ÷ 26

7) Marewa knows that 324 ÷ 36 = 9
Using this, what is the value of
a) 324 ÷ 18 (b) 324 ÷ 12 (c) 324 ÷ 72
d) 324 ÷ 9 (e) 162 ÷ 9 (f) 648 ÷ 36

8) Aloma knows that 240 ÷ 15 = 16
Using this, what is the value of
a) 480 ÷ 15 (b) 120 ÷ 15 (c) 240 ÷ 16
d) 480 ÷ 32 (e) 240 ÷ 32 (f) 240 ÷ 5

9) Barnaby knows that $420 \div 14 = 30$
Using this what is the value of

a) $420 \div 28$	(b) $420 \div 7$	(c) $210 \div 14$
d) $840 \div 14$	(e) $420 \div 30$	(f) $420 \div 15$

10) Francesca knows that $324 \div 54 = 6$
Using this, what is the value of

a) $324 \div 108$	(b) $324 \div 6$	(c) $324 \div 27$
d) $162 \div 54$	(e) $648 \div 54$	(f) $648 \div 27$

AC
EA
AA
AM
AP

Division Strategies

Target

We are practicing using basic facts to write division problems.

Exercise 14

Place the numbers given in the grid to get an answer as close as possible to the given target number.

1) $\square\square \div \square$

1, 2 and 3 Target 6

2) $\square\square \div \square$

2, 3 and 4 Target 7

3) $\square\square \div \square$

2, 3 and 5 Target 5

4) $\square\square \div \square$

3, 4 and 5 Target 16

5) $\square\square \div \square$

4, 5 and 6 Target 8

6) $\square\square \div \square$

6, 7 and 9 Target 11

7) $\square\square \div \square$

5, 6 and 8 Target 10

8) $\square\square \div \square$

6, 7 and 8 Target 9

9) $\square\square \div \square$

7, 8 and 9 Target 12

10) $\square\square \div \square$

2, 4 and 6 Target 8

11) $\square\square \div \square$

1, 3 and 5 Target 6

12) $\square\square \div \square$

3, 4 and 5 Target 13

AC
EA
AA
AM
AP

Division Strategies

Number Squares

We are practising recognising factors of numbers.

Exercise 15

Find the missing numbers in each number square. The number at the end of the row is the product of the numbers in that row. The number at the bottom of each column is the product of the numbers in that column.

1)

			72
			120
			42
70	32	162	

Use 1, 2, 3, … 9 once each to fill the 9 spaces.

2)

5			20
		2	12
	3		30
25	18	16	

Two of the hidden numbers are 1.
Four are chosen from 2, 3, 4, 5, 6 and 7.

3)

	3		30
4			16
		2	6
20	9	16	

Two of the hidden numbers are 1.
Four are chosen from 2, 3, 4, 5, 6, 7, 8 and 9.

4)

				20
				12
				14
				6
4	15	28	12	

Seven of the hidden numbers are 1.
Five are chosen from 2, 3, 4, 5, 6, 7, 8 and 9.

5)

				12
				18
				30
				16
24	10	24	18	

Seven of the hidden numbers are 2.
The other nine numbers are chosen from 1, 3, 5, 6.

6)

			12	14400
	14			980
15				450
		9		450
900	700	5400	840	

Seven of the hidden numbers are 1.
Five are multiples of 10 below 100.

Lucky Dip?
Answers

Exercise 1

1) 400, 300, 200

2) 400, 300, 200, 90, 70

3) 400, 300, 200, 125, 90, 75, 70, 45, 35

4) 400, 300, 200, 90, 70, 18, 108, 64, 24, 12

5) 300, 108, 99, 93, 90, 87, 75, 63, 45, 24, 18, 15

Pick a Pair
Answers

Exercise 2

1) $80 \div 10 = 8$

(2) $80 \div 5 = 16$ or $80 \div 16 = 5$

3) $120 \div 20 = 3$

(4) $4{,}900 \div 7 = 70$ or $4{,}900 \div 70 = 7$

5) $60 \div 20 = 3$

(6) $80 \div 40 = 2$ or $8 \div 4 = 2$

7) $72 \div 9 = 8$

(8) $120 \div 30 = 4$

9) $30 \div 10 = 3$

(10) $420 \div 7 = 60$

11) $180 \div 60 = 3$

(12) $40 \div 5 = 8$

13) $32 \div 8 = 4$

(14) $560 \div 70 = 80$

15) $210 \div 70 = 3$

(16) $450 \div 9 = 50$

17) $160 \div 40 = 4$

(18) $240 \div 6 = 40$

19) $60 \div 4 = 15$

(20) $4{,}800 \div 80 = 60$

Find the Family
Answers

Exercise 3

1)
40 ÷ 20 = 2
40 ÷ 5 = 8
20 ÷ 10 = 2
20 ÷ 2 = 10
8 ÷ 4 = 2
40 ÷ 10 = 4
40 ÷ 4 = 10
20 ÷ 5 = 4
10 ÷ 5 = 2
8 ÷ 2 = 4
40 ÷ 8 = 5
40 ÷ 2 = 20
20 ÷ 4 = 5
10 ÷ 2 = 5
4 ÷ 2 = 2

2)
60 ÷ 20 = 3
60 ÷ 3 = 20
20 ÷ 4 = 5
60 ÷ 10 = 6
60 ÷ 15 = 4
15 ÷ 5 = 3
60 ÷ 6 = 10
20 ÷ 5 = 4

3)
100 ÷ 50 = 2
100 ÷ 25 = 4
50 ÷ 2 = 25
100 ÷ 25 = 4
100 ÷ 2 = 50
25 ÷ 5 = 5
100 ÷ 4 = 25
50 ÷ 25 = 2
4 ÷ 2 = 2

4)
120 ÷ 40 = 3
120 ÷ 20 = 6
120 ÷ 6 = 20
120 ÷ 3 = 40
40 ÷ 4 = 10
30 ÷ 6 = 5
24 ÷ 6 = 4
20 ÷ 10 = 2
20 ÷ 2 = 10
12 ÷ 3 = 4
10 ÷ 2 = 5
4 ÷ 2 = 2
120 ÷ 30 = 4
120 ÷ 12 = 10
120 ÷ 5 = 24
40 ÷ 20 = 2
40 ÷ 2 = 20
30 ÷ 5 = 6
24 ÷ 4 = 6
20 ÷ 5 = 4
12 ÷ 6 = 2
12 ÷ 2 = 6
6 ÷ 3 = 2
120 ÷ 24 = 5
120 ÷ 10 = 12
120 ÷ 4 = 30
40 ÷ 10 = 4
30 ÷ 10 = 3
30 ÷ 3 = 10
24 ÷ 2 = 12
20 ÷ 4 = 5
12 ÷ 4 = 3
10 ÷ 5 = 2
6 ÷ 2 = 3

5)
80 ÷ 40 = 2
80 ÷ 10 = 8
80 ÷ 4 = 20
40 ÷ 10 = 4
40 ÷ 4 = 10
20 ÷ 5 = 4
16 ÷ 8 = 2
10 ÷ 5 = 2
8 ÷ 2 = 4
80 ÷ 20 = 4
80 ÷ 8 = 10
80 ÷ 2 = 40
40 ÷ 8 = 5
40 ÷ 2 = 20
20 ÷ 4 = 5
16 ÷ 4 = 4
10 ÷ 2 = 5
4 ÷ 2 = 2
80 ÷ 16 = 5
80 ÷ 5 = 16
40 ÷ 20 = 2
40 ÷ 5 = 8
20 ÷ 10 = 2
20 ÷ 2 = 10
16 ÷ 2 = 8
8 ÷ 4 = 2

6)
35 ÷ 7 = 5
14 ÷ 7 = 2
10 ÷ 2 = 5
35 ÷ 5 = 7
14 ÷ 2 = 7
25 ÷ 5 = 5
10 ÷ 5 = 2

7)

80 ÷ 40 = 2
80 ÷ 8 = 10
80 ÷ 2 = 40
64 ÷ 8 = 8
40 ÷ 20 = 2
40 ÷ 2 = 20
32 ÷ 4 = 8
20 ÷ 4 = 5
16 ÷ 2 = 8
4 ÷ 2 = 2

80 ÷ 20 = 4
80 ÷ 5 = 16
64 ÷ 32 = 2
64 ÷ 4 = 16
40 ÷ 8 = 5
32 ÷ 16 = 2
32 ÷ 2 = 16
16 ÷ 8 = 2
8 ÷ 4 = 2

80 ÷ 16 = 5
80 ÷ 4 = 20
64 ÷ 16 = 4
64 ÷ 2 = 32
40 ÷ 5 = 8
32 ÷ 8 = 4
20 ÷ 5 = 4
16 ÷ 4 = 4
8 ÷ 2 = 4

8)

180 ÷ 90 = 2
180 ÷ 18 = 10
180 ÷ 9 = 20
90 ÷ 30 = 3
90 ÷ 10 = 9
90 ÷ 5 = 18
30 ÷ 10 = 3
30 ÷ 3 = 10
20 ÷ 5 = 4
18 ÷ 6 = 3
15 ÷ 5 = 3
10 ÷ 2 = 5

180 ÷ 30 = 6
180 ÷ 15 = 12
180 ÷ 6 = 30
90 ÷ 18 = 5
90 ÷ 9 = 10
90 ÷ 3 = 30
30 ÷ 6 = 5
30 ÷ 2 = 15
20 ÷ 2 = 10
18 ÷ 3 = 6
15 ÷ 3 = 5
9 ÷ 3 = 3

180 ÷ 20 = 9
180 ÷ 10 = 18
180 ÷ 2 = 90
90 ÷ 15 = 6
90 ÷ 6 = 15
30 ÷ 15 = 2
30 ÷ 5 = 6
20 ÷ 10 = 2
18 ÷ 9 = 2
18 ÷ 2 = 9
10 ÷ 5 = 2
6 ÷ 3 = 2

9)

160 ÷ 80 = 2
160 ÷ 16 = 10
160 ÷ 5 = 32
80 ÷ 40 = 2
80 ÷ 8 = 10
80 ÷ 2 = 40
64 ÷ 8 = 8
40 ÷ 10 = 4
40 ÷ 4 = 10
32 ÷ 8 = 4
16 ÷ 8 = 2
10 ÷ 5 = 2
8 ÷ 2 = 4

160 ÷ 40 = 4
160 ÷ 10 = 16
160 ÷ 4 = 40
80 ÷ 16 = 5
80 ÷ 5 = 16
64 ÷ 32 = 2
64 ÷ 4 = 16
40 ÷ 8 = 5
40 ÷ 2 = 20
32 ÷ 4 = 8
16 ÷ 4 = 4
10 ÷ 2 = 5
4 ÷ 2 = 2

160 ÷ 32 = 5
160 ÷ 8 = 20
160 ÷ 2 = 80
80 ÷ 10 = 8
80 ÷ 4 = 20
64 ÷ 16 = 4
64 ÷ 2 = 32
40 ÷ 5 = 8
32 ÷ 16 = 2
32 ÷ 2 = 16
16 ÷ 2 = 8
8 ÷ 4 = 2

10)

90 ÷ 45 = 2

90 ÷ 9 = 10

60 ÷ 30 = 2

60 ÷ 2 = 30
45 ÷ 5 = 9

90 ÷ 30 = 3

90 ÷ 3 = 30

60 ÷ 15 = 4

45 ÷ 15 = 3
45 ÷ 3 = 15

90 ÷ 10 = 9

90 ÷ 2 = 45

60 ÷ 4 = 15

45 ÷ 9 = 5
30 ÷ 15 = 2

$30 \div 10 = 3$	$30 \div 3 = 10$	$30 \div 2 = 15$
$15 \div 5 = 3$	$15 \div 3 = 5$	$10 \div 5 = 2$
$10 \div 2 = 5$	$9 \div 3 = 3$	$4 \div 2 = 2$

Multiplication Squares
Answers

Exercise 4

1)

x	5	4	6	2
3	15	12	18	6
8	40	32	48	16
4	20	16	24	8
7	35	28	42	14

(2)

x	10	5	3	4
3	30	15	9	12
8	80	40	24	32
9	90	45	27	36
6	60	30	18	24

(3)

x	4	3	9	1
2	8	6	18	2
8	32	24	72	8
3	12	9	27	3
5	20	15	45	5

4)

x	7	4	6	3
9	63	36	54	27
2	14	8	12	6
6	42	24	36	18
5	35	20	30	15

(5)

x	7	4	3	2
5	35	20	15	10
4	28	16	12	8
3	21	12	9	6
8	56	32	24	16

(6)

x	7	3	10	6
5	35	15	50	30
2	14	6	20	12
4	28	12	40	24
9	63	27	90	54

7)

x	3	8	4	9
1	3	8	4	9
6	18	48	24	54
4	12	32	16	36
7	21	56	28	63

(8)

x	8	3	2	10
8	64	24	16	80
7	56	21	14	70
4	32	12	8	40
6	48	18	12	60

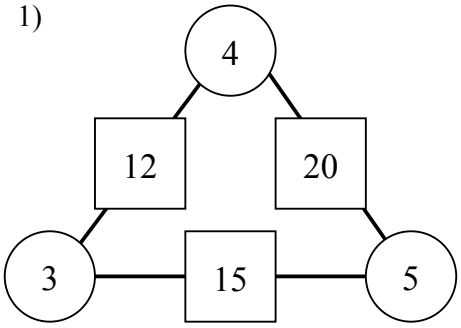
(9)

x	6	5	8	4
3	18	15	24	12
2	12	10	16	8
5	30	25	40	20
7	42	35	56	28

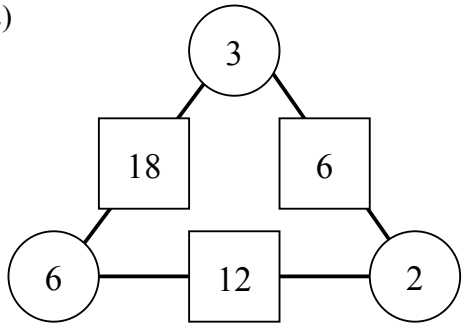
Dividagons
Answers

Exercise 5

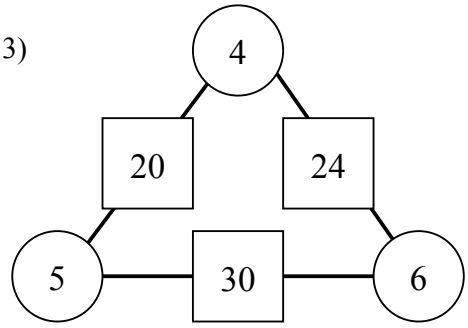
1)



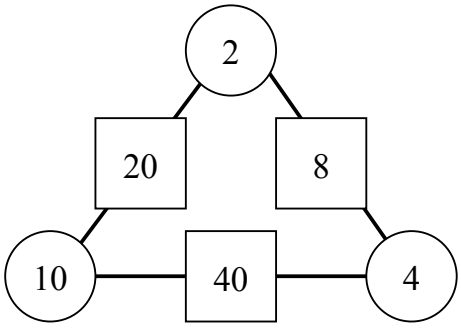
2)



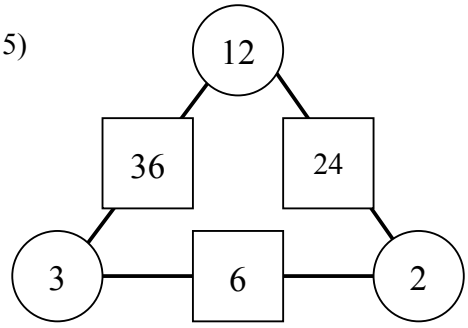
3)



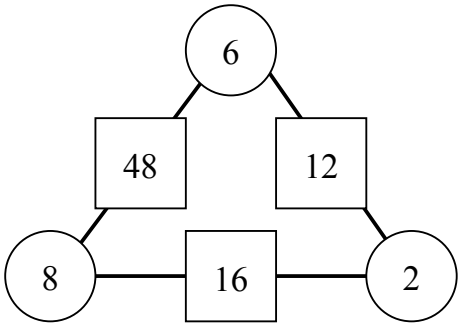
4)



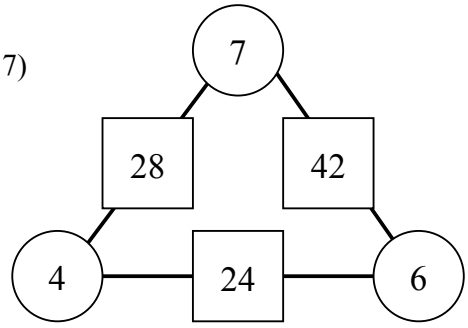
5)



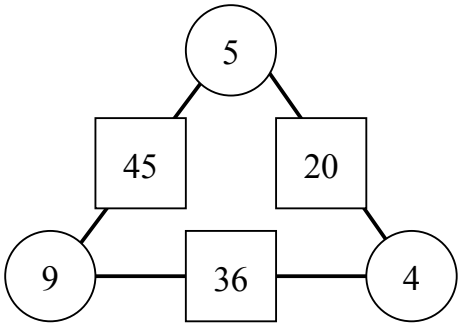
6)



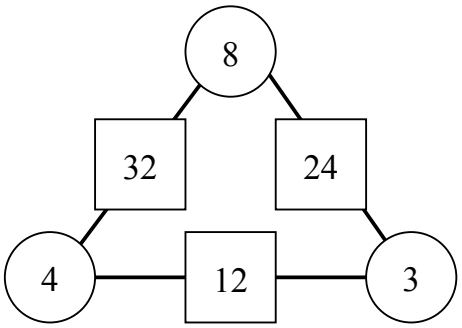
7)



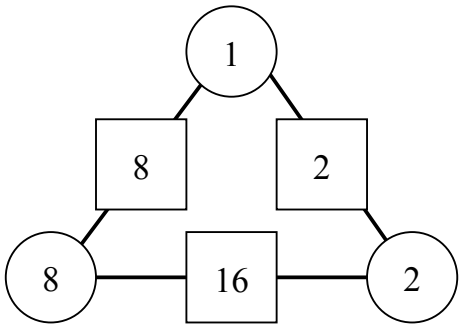
8)



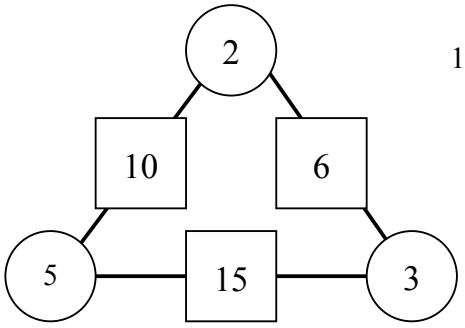
9)



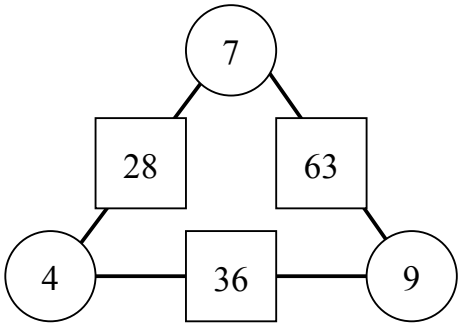
10)



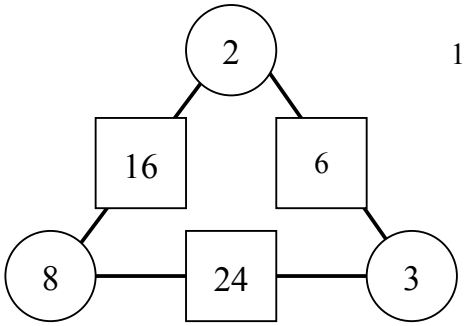
11)



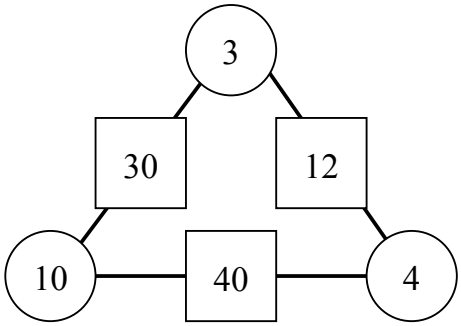
12)



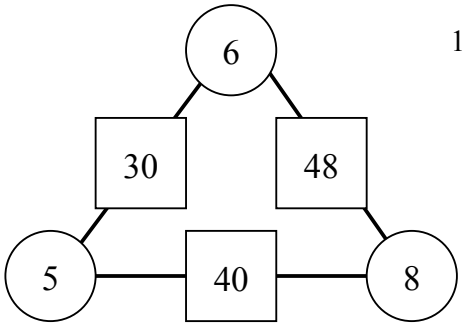
13)



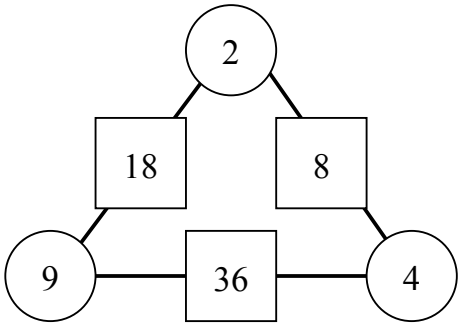
14)



15)



16)



Multiples and Factors
Answers

Exercise 6

1) a) & b) Multiples of two and four.

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

c) All the multiples of four are also multiples of two.
d) 4
e) 2

2) a) & b) Multiples of three and nine.

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

c) All the multiples of nine are also multiples of three.
d) 9
e) 3

3) a) & b) Multiples of two and nine.

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

c) The only common multiples are the multiples of nine that are also divisible by two.

d) 18

e) 1

4) f) & g) Multiples of three and six.

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

h) All the multiples of six are also multiples of three.

i) 6

j) 3

5) f) & g) Multiples of four and eight.

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

h) All the multiples of eight are also multiples of four.
i) 8
j) 4

6) a) & b) Multiples of four and six.

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

h) The only common multiples are the multiples of six that are also divisible by four.
i) 12
j) 2

7) $LCM_{ab} = \dfrac{a \times b}{HCF_{ab}}$

8) a) 135 ÷ 9 (b) 624 ÷ 8

Fun with Factors
Answers

Exercise 7

1) Powers of two.

2) Even numbers that aren't powers of two.

3) 121

4) 91

5) 64 and 15625

6) 4 rabbits and 3 hutches.

7) 36 rabbits and 5 hutches.

8) There are many solutions eg. 45, 36, 27, 18, 90 or 12, 30, 75, 48, 69

Do it in your head
Answers

Exercise 8

1)	124	(2)	30
3)	111	(4)	50
5)	241	(6)	81
7)	41	(8)	41
9)	71	(10)	60
11)	91	(12)	421
13)	51	(14)	50
15)	70	(16)	80
17)	321	(18)	100
19)	54	(20)	71
21)	92	(22)	321
23)	111	(24)	121
25)	213	(26)	81
27)	24	(28)	123
29)	43	(30)	88

Division by Partitioning
Answers

Exercise 9

1)	96	(2)	78
3)	54	(4)	112
5)	135	(6)	91
7)	60	(8)	54
9)	40	(10)	30
11)	132	(12)	232

Working may vary

1)	$40 \div 4 + 28 \div 4 = 17$	(2)	$120 \div 4 + 8 \div 4 = 32$
3)	$100 \div 5 + 45 \div 5 = 29$	(4)	$60 \div 6 + 42 \div 6 = 17$
5)	$90 \div 9 + 27 \div 9 = 13$	(6)	$160 \div 8 + 24 \div 8 = 23$
7)	$40 \div 4 + 36 \div 4 = 19$	(8)	$60 \div 3 + 27 \div 3 = 29$
9)	$60 \div 6 + 48 \div 6 = 18$	(10)	$30 \div 3 + 18 \div 3 = 16$
11)	$60 \div 6 + 30 \div 6 = 15$	(12)	$140 \div 7 + 28 \div 7 = 24$

Division Using Tidy Numbers
Answers

Exercise 10

Working may vary

1)	60 ÷ 3 - 6 ÷ 3 = 18	(2)	80 ÷ 4 - 8 ÷ 4 = 18
(3)	120 ÷ 6 - 6 ÷ 6 = 19	(4)	80 ÷ 4 - 4 ÷ 4 = 19
(5)	120 ÷ 3 - 9 ÷ 3 = 37	(6)	300 ÷ 3 - 9 ÷ 3 = 97
7)	400 ÷ 4 - 8 ÷ 4 = 92	(8)	500 ÷ 5 - 5 ÷ 1 = 99
(9)	600 ÷ 6 - 6 ÷ 6 = 99	(10)	150 ÷ 5 - 5 ÷ 5 = 29
(11)	90 ÷ 3 – 3 ÷ 3 = 29	(12)	140 ÷ 7 - 7 ÷ 7 = 19

Dividing and Dividing
Answers

Exercise 11

Task 1

1)	75	(2)	32	(3)	23
4)	46	(5)	125	(6)	26
7)	35	(8)	14	(9)	10.5 or 10½
10)	22.5 or 22½	(11)	16.5 or 16½	(12)	175.5 or 175½

Task 2

1)	16	(2)	25	(3)	14
4)	22	(5)	75	(6)	56

Task 3

1)	10	(2)	4	(3)	12
4)	8	(5)	6	(6)	9
7)	25	(8)	6	(9)	12
10)	20				

If you know
Answers

Exercise 13

1)	a) 32	(b) 8	(c) 8
	d) 32	(e) 14	(f) 7
2)	a) 4	(b) 33	(c) 22
	d) 6	(e) 33	(f) 132
3)	a) 18	(b) 32	(c) 8
	d) 8	(e) 48	(f) 24
4)	a) 30	(b) 30	(c) 45
	d) 7.5	(e) 18	(f) 9
5)	a) 28	(b) 7	(c) 28
	d) 14	(e) 18	(f) 7
6)	a) 13	(b) 13	(c) 6.5
	d) 11	(e) 22	(f) 5.5
7)	a) 18	(b) 27	(c) 4.5
	d) 36	(e) 18	(f) 18
8)	a) 32	(b) 8	(c) 15
	d) 15	(e) 7.5	(f) 48
9)	a) 15	(b) 60	(c) 15
	d) 60	(e) 14	(f) 28
10)	a) 3	(b) 54	(c) 12
	d) 3	(e) 12	(f) 24

Target
Answers

Exercise 14

Place the numbers given in the grid to get an answer as close as possible to the given target number.

1) | 1 | 3 | ÷ | 2 |

2) | 2 | 4 | ÷ | 3 |

3) | 2 | 3 | ÷ | 5 |

4) | 4 | 5 | ÷ | 3 |

5) | 4 | 5 | ÷ | 6 |

6) | 7 | 9 | ÷ | 6 |

7) | 6 | 5 | ÷ | 8 |

8) | 6 | 8 | ÷ | 7 |

9) | 8 | 9 | ÷ | 7 |

10) | 4 | 2 | ÷ | 6 |

11) | 3 | 1 | ÷ | 5 |

12) | 5 | 3 | ÷ | 4 |

Number Squares
Answers

Exercise 15

1)

2	4	9	72
5	8	3	120
7	1	6	42
70	32	162	

Use 1, 2, 3, … 9 once each to fill the 9 spaces.

2)

5	1	4	20
1	6	2	12
5	3	2	30
25	18	16	

Two of the hidden numbers are 1.
Four are chosen from 2, 3, 4, 5, 6 and 7.

3)

5	3	2	30
4	1	4	16
1	3	2	6
20	9	16	

Two of the hidden numbers are 1.
Four are chosen from 2, 3, 4, 5, 6, 7, 8 and 9.

4)

1	5	4	1	20
2	3	1	2	12
1	1	7	2	14
2	1	1	3	6
4	15	28	12	

Seven of the hidden numbers are 1.
Five are chosen from 2, 3, 4, 5, 6, 7, 8 and 9.

5)

2	1	2	3	12
6	1	3	1	18
1	5	2	3	30
2	2	2	2	16
24	10	24	18	

Seven of the hidden numbers are 2.
The other nine numbers are chosen from 1, 3, 5, 6.

6)

60	1	20	12	14400
1	14	1	70	980
15	1	30	1	450
1	50	9	1	450
900	700	5400	840	

Seven of the hidden numbers are 1.
Five are multiples of 10 below 100.