



**BROAD HORIZON**  
— TUITION CENTRE —

# 11+ Tuition – Year 4

## Week 2

**Name:** \_\_\_\_\_

**Date:** \_\_\_\_\_

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## Starter Task – Quick Revision

### Explanation – Multiplying and dividing by 10,100 and 1000

**Lo:** To multiply and divide by 10 and 100.

I know that when I multiply, I move to the right.

I know that when I divide, I move to the left.

#### Multiplication Rule



Move the decimal point to the **right**.

This depends on how many zero's the number you're multiplying by has.

**E.g.** If you're multiplying by 10 you will move the decimal point once to the right.

If you're multiplying by 1000 you will move the decimal point 3 times to the right.

#### Division Rule



Move the decimal point to the **left**.

This depends on how many zero's the number you're dividing by has.

**E.g.** If you're dividing by 100 you will move the decimal point twice to the left.

**Remember:** If the number **does not** have a decimal point, then you need to add the decimal point in at the end of the number before you start.

**E.g.**  $57 = 57.0$

Last lesson we covered multiplying and dividing numbers by 10, 100 and 1000.

1)  $0.025 \div 100 =$

2)  $1.2 \times 1000 =$

3)  $36.78 \times 10 =$

4)  $23 \div 100 =$

5)  $587 \times 1000 =$

6)  $750 \div 1000 =$

7)  $24.2 \div 10 =$

8)  $3.65 \times 100 =$

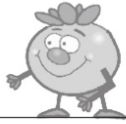
9)  $25.347 \times 1000 =$

10)  $9.87 \div 1000 =$

11)  $0.2 \div 100 =$

12)  $96 \div 1000 =$

# Starter task – Vocabulary



## Exercise C

Select the most suitable word from the choice provided.

1. To ..... his great strength, the heavyweight boxer lifted the front of a car off the ground.  
**a: imagine                      b: demonstrate                      c: illusion**
  
2. Over the ..... of the last few years, I've tried to learn some Spanish.  
**a: course                      b: machinery                      c: opportunity**
  
3. .... in factories became a driving force of the Industrial Revolution.  
**a: course                      b: machinery                      c: abusive**
  
4. It was such a long time ago that my memory of it is .....!  
**a: foggy                      b: illusion                      c: demonstrate**
  
5. You must ..... the flower pots to loosen the soil and remove the plants.  
**a: illusion                      b: opportunity                      c: invert**
  
6. If I get the ..... when I'm older, I'd like to spend some time in Australia.  
**a: opportunity                      b: invert                      c: imagine**
  
7. If you're very thirsty in the desert, you might experience the ..... of seeing water in the distance.  
**a: illusion                      b: course                      c: foggy**
  
8. The player was sent off as a result of being ..... to the referee.  
**a: desert                      b: opportunity                      c: abusive**
  
9. The soldiers had to ..... their vehicle when they came under fire.  
**a: desert                      b: machinery                      c: demonstrate**
  
10. While playing the video game, the boy began to ..... that he was the one fighting the dragon.  
**a: invert                      b: imagine                      c: abusive**

# Maths

## Mental Maths

Paper 1	Answer	Paper 2	Answer
1. Write in figures: Two thousand, five hundred and forty.		1. Write in figures: Five thousand, seven hundred and eighty three.	
2. What does the figure 7 stand for in the number 6 479?		2. What does the figure 9 stand for in the number 3 953?	
3. Write in figures the number: five thousand, six hundred.		3. Write in figures the number: seven thousand, eight hundred.	
4. What is the biggest number you can make with the digits:  3, 8, 4, 2, 9 ?		4. What is the smallest number you can make with the digits:  9, 5, 2, 7, 1 ?	
5. What is one more than 3 679 ?		5. What is one more than 7 559 ?	
6. What is seven more than 785?		6. What is eight more than 333 ?	
7. What is 45 multiplied by 10 ?		7. What is 28 multiplied by 10 ?	
8. How many times is 340 bigger than 34 ?		8. How many times is 670 bigger than 67 ?	
9. Which is greater,  3 546 or 3 456 ?		9. Which is smaller,  7 477 or 7 774 ?	
10. What is the next number in this sequence:  34, 44, 54, 64, _____ ?		10. What is the next number in this sequence:  22, 32, 42, 52, _____ ?	

## Column Multiplication with Explanation

**Lo:** To multiply any number by a two-digit number.

To make this a little easier, some of the steps have been colour coded for

**you.** **Step 1:** Draw the layout for the sum, like the diagram below.

**Step 2:** Take the first number on the lowest row (**units**) and multiply it by each of the numbers above it.

You write your answer on the first row,

**Step 3:** You now **multiply the tens column** by each of the numbers above it.

However, in order to show that we are multiplying a tens column we have to **add 1 zero**

before we start.

**Step 4:** Now you simply add the two rows together to get your final answer.

Explanation Example				
		2	3	4
<b>X</b>			<b>2</b>	<b>1</b>
		<b>2</b>	<b>3</b>	<b>4</b>
<b>+</b>	<b>4</b>	<b>6</b>	<b>8</b>	<b>0</b>
	<b>4</b>	<b>9</b>	<b>1</b>	<b>4</b>

1

**Remember:** When multiplying, if the answer is two digits then **you write the units** and **carry the tens over** to the next column and you will simply add it on to the multiplication answer of the next column. **E.g.  $7 \times 8 = 56$ , so you write the 6 and carry the 5 forward.**

## Practice - Column Multiplication

1.

		1	6	1
x			2	3

2.

		2	3	2
x			2	6

3.

		6	1	4
x			1	8

4.

		9	6	9
x			9	5

5.

		7	4	0
x			9	6

6.

		3	6	2
x			5	8

7.

		3	0	5
x			7	1

8.

		3	7	0
x			6	4

9.

		5	8	4
x			1	5

10.

		8	5	1
x			8	9

11.

		7	4	9
x			9	8

12.

		4	8	2
x			2	3

13.

		6	4	6
x			1	0

14.

		7	0	9
x			1	7

15.

		9	1	4
x			5	7

16.

		7	1	8
x			4	5

**1.**

		2	1	9	0
x				6	9

**2.**

		1	3	4	2
x				5	2

**3.**

		1	5	2	1
x				7	3

**4.**

		1	1	4	3
x				3	4

**5.**

		2	4	6	8
x				2	7

**6.**

		1	8	9	5
x				4	6

**7.**

		1	4	6	2
x				7	0

**8.**

		1	2	3	9
x				1	9

**9.**

		1	3	5	9
x				7	7

**10.**

		2	1	2	7
x				4	8

**11.**

		1	9	2	0
x				1	2

**12.**

		2	2	9	1
x				4	0

<b>13.</b>					
		2	3	1	6
x				9	0

<b>14.</b>					
		1	0	7	4
x				1	9

<b>15.</b>					
		2	1	9	6
x				4	5

<b>16.</b>					
		1	8	8	6
x				1	7

### Further Practice - Column Multiplication

$$\begin{array}{r} 1129 \\ \times 35 \\ \hline \end{array}$$

$$\begin{array}{r} 1255 \\ \times 85 \\ \hline \end{array}$$

$$\begin{array}{r} 2233 \\ \times 40 \\ \hline \end{array}$$

$$\begin{array}{r} 1644 \\ \times 86 \\ \hline \end{array}$$

$$\begin{array}{r} 1501 \\ \times 56 \\ \hline \end{array}$$

$$\begin{array}{r} 2268 \\ \times 76 \\ \hline \end{array}$$

$$\begin{array}{r} 1777 \\ \times 74 \\ \hline \end{array}$$

$$\begin{array}{r} 1224 \\ \times 12 \\ \hline \end{array}$$

$$\begin{array}{r} 1070 \\ \times 99 \\ \hline \end{array}$$

$$\begin{array}{r} 2314 \\ \times 79 \\ \hline \end{array}$$

$$\begin{array}{r} 1426 \\ \times 90 \\ \hline \end{array}$$

$$\begin{array}{r} 2325 \\ \times 65 \\ \hline \end{array}$$

### Challenge - Column Multiplication

$$\begin{array}{r} 1223 \\ \times 928 \\ \hline \end{array}$$

$$\begin{array}{r} 1798 \\ \times 955 \\ \hline \end{array}$$

$$\begin{array}{r} 1688 \\ \times 711 \\ \hline \end{array}$$

$$\begin{array}{r} 1158 \\ \times 954 \\ \hline \end{array}$$

$$\begin{array}{r} 1868 \\ \times 334 \\ \hline \end{array}$$

$$\begin{array}{r} 1056 \\ \times 236 \\ \hline \end{array}$$

$$\begin{array}{r} 1709 \\ \times 940 \\ \hline \end{array}$$

$$\begin{array}{r} 2070 \\ \times 853 \\ \hline \end{array}$$

$$\begin{array}{r} 1291 \\ \times 438 \\ \hline \end{array}$$

$$\begin{array}{r} 2298 \\ \times 248 \\ \hline \end{array}$$

$$\begin{array}{r} 1727 \\ \times 415 \\ \hline \end{array}$$

$$\begin{array}{r} 1260 \\ \times 665 \\ \hline \end{array}$$

## Application - Column Multiplication

Use a formal method to calculate the answers to these questions.

1. There are 15 biscuits in a packet. A shop orders 156 packets. How many biscuits will be in the 156 packets?
2. A school buys 172 boxes of pencils. Each box has 12 pencils. How many pencils has the school bought?
3. A wholesaler sells apples for 17p each. A grocer buys 197 apples. How much will they cost?
4. It takes 18 minutes to make a toy car. How many minutes will it take to make 205 cars?
5. A machine makes 16 dice in a minute. A working day is 264 minutes. How many dice are made in 264 minutes?
6. A cinema has 21 screens. Each screen has 297 seats. How many seats are there in the cinema?
7. Eggs are sold in trays of 24. In a week, a farmer sells 372 trays. How many eggs does he sell in one week?
8. A bag of nails contains 613 nails. A hardware store has 23 bags. How many nails are in the 23 bags?
9. There are 27 children in a class. Each child pays £7.49 for a school trip. How much do they pay altogether?
10. A football club has an average attendance of 859 people to each match. What is the total attendance for the 29 matches played in a season?

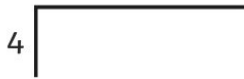
## Short Division Explanation

$$74 \div 4 =$$

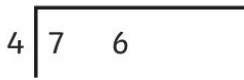
1. Draw this out neatly with a ruler. It looks a bit like a bus stop, so the written method for division is sometimes known as the 'Bus Stop' method.



2. Write the number you are dividing by, the **divisor**, in front of the vertical line.



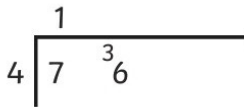
3. Write the number that is being divided, the **dividend**, on the right-hand side of the vertical line.



4. The answer will go on top of the vertical line.

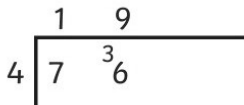
### Step 1

Share 7 tens into four groups. There is 1 ten in each group with 3 tens left over. We write the 1 above the line and regroup the remaining 3 tens into 30 ones, moving this to the next column.



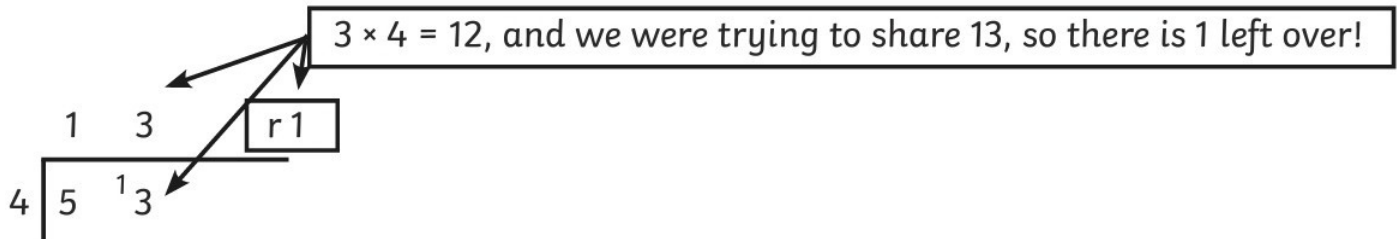
### Step 2

How many 4s are there in 36? There are 9 exactly, so we write this above the line.



## Short Division with Remainders

Sum:  $54 \div 4 = 13 \text{ r}1$



**Step 1:** How many 4's go into 5? Answer is 1 remainder 1.

The remaining one is carried forward onto the 3 to make 13.

**Step 2:** Now how many 4's go into 13? Answer is 3 remainder 1.

**Step 3:** There is 1 left over. This is a remainder. So we write r1 on the line to show this is a remainder.

## Practice - Short Division

I can use the short written method for division where there are remainders (two-digit numbers).



1. Can you use the written method for division to calculate the answers to these questions?

a.  $56 \div 4 =$  \_\_\_\_\_

b.  $48 \div 3 =$  \_\_\_\_\_

c.  $96 \div 6 =$  \_\_\_\_\_

d.  $110 \div 5 =$  \_\_\_\_\_

e.  $136 \div 8 =$  \_\_\_\_\_

2. Now try these. They have **remainders**.

a.  $27 \div 5 =$  \_\_\_\_\_

b.  $49 \div 4 =$  \_\_\_\_\_

c.  $74 \div 6 =$  \_\_\_\_\_

d.  $34 \div 3 =$  \_\_\_\_\_

e.  $67 \div 9 =$  \_\_\_\_\_

I can use the short written method for division where there are remainders (two-digit numbers).



1. Use the short method of division to calculate your answers. You can do it!

a.  $73 \div 5 =$  \_\_\_\_\_

b.  $57 \div 4 =$  \_\_\_\_\_

c.  $92 \div 3 =$  \_\_\_\_\_

d.  $99 \div 8 =$  \_\_\_\_\_

e.  $77 \div 6 =$  \_\_\_\_\_

2. Well done! Now try these three-digit calculations.

a.  $379 \div 3 =$  \_\_\_\_\_

b.  $649 \div 9 =$  \_\_\_\_\_

c.  $483 \div 4 =$  \_\_\_\_\_

d.  $114 \div 5 =$  \_\_\_\_\_

e.  $704 \div 6 =$  \_\_\_\_\_

3. How can you identify multiples of 5? Use what you know about multiples of 5 to predict whether these division calculations will have a remainder. Calculate the answers to see if you were correct.

a.  $2466 \div 5 =$  \_\_\_\_\_

I think there will be a remainder.

I think there won't be a remainder.

b.  $3942 \div 5 =$  \_\_\_\_\_

I think there will be a remainder.

I think there won't be a remainder.

a.  $7260 \div 5 =$  \_\_\_\_\_

I think there will be a remainder.

I think there won't be a remainder.

## Further Practice - Short Division

I can use the short written method for division where there are remainders (two-digit numbers).



1. Use the short method of division to calculate your answers. You can do it!

a.  $73 \div 5 =$  \_\_\_\_\_

b.  $57 \div 4 =$  \_\_\_\_\_

c.  $92 \div 3 =$  \_\_\_\_\_

d.  $99 \div 8 =$  \_\_\_\_\_

e.  $77 \div 6 =$  \_\_\_\_\_

2. Well done! Now try these three-digit calculations.

a.  $379 \div 3 =$  \_\_\_\_\_

b.  $649 \div 9 =$  \_\_\_\_\_

c.  $483 \div 4 =$  \_\_\_\_\_

d.  $114 \div 5 =$  \_\_\_\_\_

e.  $704 \div 6 =$  \_\_\_\_\_

3. Can you do these? When you divide by 12, you may have to exchange two-digit numbers.

a.  $220 \div 12 =$  \_\_\_\_\_

b.  $267 \div 12 =$  \_\_\_\_\_

c.  $422 \div 12 =$  \_\_\_\_\_

d.  $328 \div 12 =$  \_\_\_\_\_

e.  $462 \div 12 =$  \_\_\_\_\_

### Challenge - Short Division

1)

$$7 \overline{) 2,562}$$

2)

$$5 \overline{) 9,305}$$

3)

$$4 \overline{) 4,616}$$

4)

$$9 \overline{) 3,807}$$

5)

$$3 \overline{) 6,291}$$

6)

$$6 \overline{) 1,128}$$

7)

$$2 \overline{) 8,254}$$

8)

$$8 \overline{) 5,920}$$

9)

$$7 \overline{) 7,483}$$

C

## Application – Short division

The children of Dove Primary School have their sports day today. They are all really excited!  
The teachers want to put them into teams. There are **498** children in the school.

Use short division to work out the answers to these problems.

1. How many teams will there be if they are sorted into teams of 3 children? \_\_\_\_\_

Will there be any children left who are not in a team of 3? \_\_\_\_\_

2. What if they are sorted into teams of 4 children? \_\_\_\_\_

Will there be any children left who are not in a team of 4? \_\_\_\_\_

3. What if they are sorted into teams of 6 children? \_\_\_\_\_

Will there be any children left who are not in a team of 6? \_\_\_\_\_

4. What if they are sorted into teams of 8 children? \_\_\_\_\_

Will there be any children left who are not in a team of 8? \_\_\_\_\_

5. How many teams will there be if they are sorted into teams of 12 children? \_\_\_\_\_

Will there be any children left who are not in a team of 12? \_\_\_\_\_

6. The teachers buy each child an ice cream to have after the races. The ice creams come in packs of 5. How many packs will they need to buy? \_\_\_\_\_

7. Each child needs a medal for taking part. Medals come in packs of 11. How many packs does Dove Primary School need? \_\_\_\_\_

8. If each bottle of squash makes 20 cups of orange juice and the school buys 25 bottles, will there be enough for all of the children to have a drink? \_\_\_\_\_

9. Can you make up some of your own word problems about your school sports day?

# English - Grammar

## Active voice

There are two different ways of presenting the same information in a sentence using verbs. There are the active voice and the passive voice. In the active voice the subject of the sentence does the action:

Nina is feeding the rabbit.

|                    |  
subject    verb

The cat chased a mouse.

|            |  
subject verb

In the passive voice, the subject of the sentence has the action done to it.

The rabbit is being fed by Nina.

|                    |  
subject    verb

The mouse was chased by a cat.

|            |  
subject    verb

The passive voice uses the verb **to be** with the past participle of the verb:

is being fed

was chased

It usually sounds more natural to use the active voice when writing, but sometimes it is better to use the passive voice if there is uncertainty about who did something, or to avoid assigning blame, or if a formal tone is required.

**Write a pair of sentences, one in the active tense and the other in the passive.**

1.

2.

## English - Comprehension

### Roger's Records

"Dad?"

"What now?" Roger's father said wearily, without looking up from his newspaper.

"Guess how old Robert Wadlow was when he could carry his father up the stairs."

"I've no idea," said Roger's father.

5 "Have a guess," Roger insisted.

"Twelve."

"Wrong! It says here that Robert Pershing Wadlow, the tallest man that ever lived, was nine years old. That's the same age as me!"

10 Mr Cherry had been forced to listen to many of these fascinating facts from his son, but he had only himself to blame. It was his idea to buy Roger his first 'Book of World Records' three years ago and he had given his son the new edition every Christmas since then.

"Dad?"

"Yes, son."

15 "What do you think the record is for the furthest distance for spitting a watermelon seed?"

"Ten metres," said Mr Cherry, reading the same sentence in his newspaper for the fifth time.

"Wrong! It's actually seventy three metres!" yelled Roger triumphantly.

20 He loved it when his father got the answer wrong. He was a teacher but he didn't know his records. Roger searched for another killer question. He knew that he probably only had time for one more before his father's patience ran out. He started reading about the woman with the longest fingernails in the world.

"Dad?"

25 There was no reply. Roger looked across the living room at an outspread newspaper that seemed to have sprouted legs and feet. The feet were wearing tartan slippers, and coming from behind the newspaper was a sound like the breathing of a wounded warthog. Roger wondered if there was a record for the loudest snoring in the world!

**Now read this text and see if you can find any examples of active and passive tense, if you do then highlight them! You have 30 minutes.**

Answer these questions about the text that you've just read.  
Circle the letter that matches the correct answer.

1. How old is Roger?

- A Six
- B Seven
- C Eight
- D Nine
- E Ten

2. According to the text, what could Robert Pershing Wadlow do?

- A Carry his father up the stairs
- B Spit watermelon seeds
- C Grow really long finger nails
- D Tell his father annoying facts
- E Snore louder than anyone else in the world

3. When does Roger receive each year's 'Book of World Records'?

- A On his birthday
- B At Christmas
- C Every January
- D At Easter
- E When he has been good

4. What is Roger's father's job?

- A Journalist
- B Teacher
- C Writer for the 'Book of World Records'
- D Policeman
- E Builder

5. Which word best describes how Roger's father feels about Roger's questions?

- A Confused
- B Proud
- C Furious
- D Happy
- za E Uninterested

Answer these questions about the text that you've just read.  
Circle the letter that matches the correct answer.

6. Which of these records is not mentioned in the story?
- A The World's furthest seed spit
  - B The World's tallest man
  - C The World's longest fingernails
  - D The World's best-selling book
  - E The World's loudest snore
7. Why does Roger's father not reply to Roger's final question?
- A He has already left the room.
  - B He refuses to answer any more questions.
  - C He has fallen asleep.
  - D He is concentrating on reading.
  - E He is watching a cartoon on television.

/ 2

Answer these questions about the way words and phrases are used in the passage.

8. Which of these words is closest in meaning to "yelled" (line 19)?
- A Shouted
  - B Laughed
  - C Said
  - D Whispered
  - E Begged
9. Which of these words is closest in meaning to "fascinating" (line 9)?
- A Wrong
  - B Boring
  - C Out-of-date
  - D Interesting
  - E Correct
10. Which of these words is closest in meaning to "sprouted" (line 26)?
- A Appeared
  - B Walked
  - C Lost
  - D Grown
  - E Eaten

/ 3

Answer these questions about the way words and phrases are used in the passage.

11. "a sound like the breathing of a wounded warthog." (lines 27-28)  
Which of the following words is an adjective?
- A sound
  - B like
  - C breathing
  - D wounded
  - E warthog
12. "Roger" (line 5) and "Christmas" (line 12) are examples of which part of speech?
- A Common nouns
  - B Verbs
  - C Adjectives
  - D Proper nouns
  - E Pronouns

/ 2

In each sentence, there is one punctuation mistake. Circle the letter which matches the part of the sentence with the mistake.

13. The boys' mother took Them both to the cinema to see a film called 'Star Battle Heroes'.  
A B C D E
14. "I'm sure that you'll really enjoy yourself if you come with us to play in the park?"  
A B C D E
15. The ingredients I need to make the cake are flour, butter, sugar eggs and skimmed milk.  
A B C D E
16. "I'm going to leave on Wednesday morning," he said, although nobody believed him".  
A B C D E
17. Hannah and her family lived in a small house in the village of oakthorpe.  
A B C D E
18. Raj's grandfather cant' wait to retire because it means that he'll get a free bus pass.  
A B C D E
19. Great Britain's population is more than 60 million and it continues to, grow every day.  
A B C D E
20. "Have you ever been on holiday to France, Italy, Austria or Spain? asked John.  
A B C D E

/ 8

# Verbal Reasoning

## GL Techniques – Type Two

### TECHNIQUE TYPE TWO

In these questions you are looking for a **SIMILAR** connection between two sets of facts. Once identified, you must underline the correct relationship to gain one mark.

**Example:**

BIRD is to (egg, nest, feathers) as CAT is to (mice, fur, tail)

**Technique:**

1. Ask: in what way can BIRD be related to each of the three features in the brackets?

Answer:                      Birds lay eggs.  
                                     A bird lives in a nest.  
                                     Birds are covered with feathers.

2. Similarly, ask: in what way can CAT be related to each of its three features given in brackets ?

Answer:                      Cats chase mice.  
                                     Cats are covered with fur.  
                                     A cat has a tail.

3. You are looking for a **SIMILAR** connection between BIRD and one of its features, and CAT and one of its features. That we are talking about both animals being 'covered' with something is the connection.

The correct answer here is:

BIRD is to (egg, nest, feathers) as CAT is to (mice, fur, tail)

**Example:**

TENNIS is to (court, net, racket) as CRICKET is to (summer, bat, pads)

1. Here:  
Tennis is played on a court.  
Tennis needs a net.  
Tennis is played with a racket.

2. Similarly:  
Cricket is played in summer.  
Cricket is played with a bat.  
The batsman wears pads.

The **SIMILAR** connection here must be the equipment used to hit the ball, the racket and the bat. So, the answer is:

TENNIS is to (court, net, racket) as CRICKET is to (summer, bat, pads)

**Example:**

HAT is to (*head*, helmet, protection) as SHOE is to (*foot*, lace, buckle)

Here it is obvious that HAT is to *head*, as SHOE is to *foot*. While each of the features in brackets is in some way connected to the word outside the brackets, 'where the item is worn' is the only SIMILAR connection in both sets.

**NOTE:**

1. Sometimes it is a spelling relationship - that is, the word in brackets is a spelling alteration of the word outside the brackets. The same spelling alteration is made to both words - hence the connection.

**Example:**

BAND is to (elastic, *brand*, music) as CAMP is to (tent, field, *cramp*)

Here, an *r* has been inserted into both of the words to give *brand* and *cramp*. This is the only connection. Similarly:

PAST is to (verb, history, *passed*) as MIST is to (fog, cloud, *missed*)

Each simply has another spelling of

PAST	=	<i>passed</i>
MIST	=	<i>missed</i>

Take care!

2. Look particularly in number or time questions for another number or time to be involved:

THREE is to (6, 30, trio) as FIVE is to (8, fingers, 25)

Here, 6 and 8 are the correct answers - both have had three added. There is no similar relationship in the remaining features.

3. Sometimes a word can be spelled backwards. For example:

DOOM is to (end, *mood*, fate) as MEET is to (greet, kiss, *teem*)

Here,

DOOM	=	<i>mood</i>
MEET	=	<i>teem</i>

# PRACTICE TYPE TWO

In each of the following, there is the **SAME** connection between the word outside each set of brackets and one word inside each set of brackets. You must find this same connection and then underline the **TWO** words, one from each set of brackets.

**For Example:**

Dog is to ( paw, meat, tail ) as cow is to ( milk, calf, grass )

**Now try these:**

Car is to ( road, wheel, garage ) as barge is to ( coal, lock, canal )

Hat is to ( head, sun, brim ) as glove is to ( fingers, hand, wrist )

Finger is to ( digit, ring, nail ) as wrist is to ( bracelet, arm, joint )

Doom is to ( end, fate, mood ) as room is to ( door, moor, box )

Flame is to ( heat, glow, red ) as bulb is to ( lamp, glass, light )

Daffodil is to ( bulb, spring, yellow ) as strawberry is to ( red, sweet, cream )

Evil is to ( wicked, bad, live ) as emit is to ( exit, time, eject )

Tree is to ( branch, root, leaf ) as house is to ( dwelling, door, foundations )

Tick is to ( trick, correct, good ) as pick is to ( flower, prick, stitch )

Author is to ( book, picture, print ) as composer is to ( note, music, lively )

5 is to ( 10, 25, fingers ) as 20 is to ( 25, 150, score )

Millimetre is to ( ruler, metre, line ) as millilitre is to ( liquid, litre, bottle )

Cat is to ( fur, tail, cart ) as pat is to ( part, stroke, pet )

Summer is to ( fun, holiday, hot ) as winter is to ( snowman, dark, cold )

Fruit is to ( tree, apple, bowl ) as vegetable is to ( potato, pie, meat )

Pencil is to ( paper, pen, lead ) as pen is to ( ink, feather, write )

Rectangle is to ( pentagon, cuboid, four ) as triangle is to ( angle, base, rectangle )

Television is to ( look, set, colour ) as radio is to ( music, sound, listen )

Water is to ( rain, steam, stream ) as liquid is to ( gas, flow, solid )

Pencil is to ( pen, write, paper ) as brush is to ( paint, picture, palette )

## Reorder Words to Make a Sentence

Rearrange the words so that each sentence makes sense.  
Underline the word which doesn't fit into the sentence.  
Look at this example:

I have to lamp room my tidy

The remaining words can be arranged into the sentence:  
**I have to tidy my room.**

1. was yesterday present birthday my

2. I my open yo-yo with played

3. are mud wellingtons pies my favourite

4. dad has a hair moustache my huge

5. giant I put the killed

6. my lunchbox went forgot I

7. my not really grapes likes hamster

8. the blew tree down sun in gale the

9. my a bird's looked like rain hair nest

10. I worms night enjoy eating

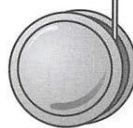
11. quite school was today books fun

12. favourite colour my soft green is

13. I clocks forward close to put the forgot

14. we project Egypt a pyramid on did

15. tadpole my grown pond has pet legs



/ 5

/ 5

*Hint: If you get stuck,  
try writing the sentence  
out in a different order to  
see what makes sense.*

/ 5

## Related Words

The words in capitals are related in some way. Choose the word from the brackets that fits best with the words in capitals.

Look at this example:

CAR BUS FERRY COACH (road drive train cargo journey)

*Hint: The answer probably won't be a word that describes the first four words — it's more likely to be another example of something of the same type.*

1. PINK GREEN ORANGE BLUE (yellow bright primary colour hue)
2. BAG SUITCASE SACHEL HOLDALL (wallet bowl pocket rucksack things)
3. EAGLE WREN WOODPECKER SPARROW (bird tree fly worm pigeon)
4. SON MOTHER UNCLE COUSIN (relative family daughter boy child)
5. BOOT CLOG TRAINER SLIPPER (foot sole laces shoe sandal) / 5
6. SNOW HAIL RAIN SLEET (fog sun cloud drizzle wind)
7. LION TIGER JAGUAR COUGAR (hippo cheetah cat animal striped)
8. ORGANISE ORDER SORT ARRANGE (tidy neat clean folder type)
9. TERRIER CORGIE COLLIE SPANIEL (dog poodle wolf puppy pet) / 5
10. BOIL STEAM ROAST BAKE (hot fry oven burn dinner)
11. SCULPT DRAW PHOTOGRAPH SKETCH (pen art paint write sing)
12. CUBE CYLINDER PRISM CUBOID (square triangle sphere circle block)
13. ROSE PANSY DAISY TULIP (oak blossom thistle daffodil flower)
14. NOSE EYE LIP TEETH (face hand laugh cheek nerve) / 4



## Mixed Verbal Reasoning Questions

You have **10 minutes** to do this test. Work as quickly and as accurately as you can.

Fill in the missing letters to complete the words in the following passage.

1. The Victorian era was a **t m** of great scientific achievement. In order
2. to share and celebrate these advances, Britain **o r a n s e** an
3. exhibition. Countries from all over the **o r l** were given space to
4. show off their achievements. The exhibition was **h l** in a huge glass
5. and iron building **c l l e** the Crystal Palace. This was the first time
6. so many countries had come together in one **p c e**. Six million
7. people visited the exhibition. Many were **o d i n y** people who had travelled on a train for the first time to get there.
8. When the exhibition **f n i s d**, the Crystal Palace was rebuilt
9. in South London. This was incredibly **x p n i v** and the
10. Palace was declared bankrupt in 1911. In 1936, a fire **s w t** through
11. the Palace, destroying it. Although the Palace no longer **e i s t**,
12. the area where it used to **s t d** is now called 'Crystal Palace'.

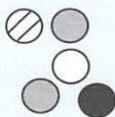



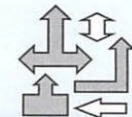
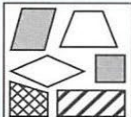
# Non-Verbal Reasoning

## Shading and Line Types

Shading is how a shape is coloured and line type is how its lines are drawn.

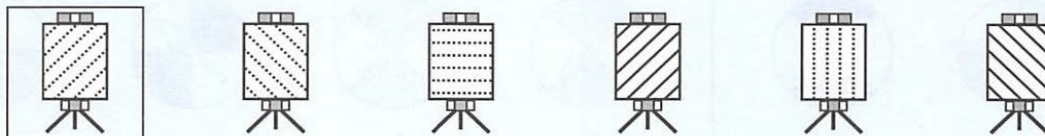
Warm Up

1. What **colour** are **most** of the shapes in each figure?

a.  b.  c.  d.  e.  f. 

grey      \_\_\_\_\_      \_\_\_\_\_      \_\_\_\_\_      \_\_\_\_\_      \_\_\_\_\_

2. How many paintings have the **same direction** of **hatching** as the painting inside the square? How many have the **same type** of **line** (dotted or solid)?



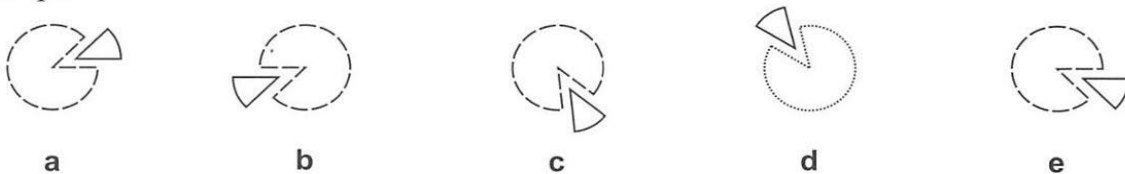
Number of paintings with the **same direction** of **hatching**: \_\_\_\_\_

Number of paintings with the **same type** of **line**: \_\_\_\_\_


## Odd One Out

Find the figure in each row that is most unlike the other figures.

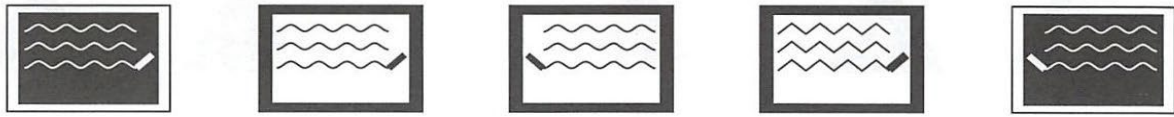
Example:



In all other figures, the big shape has a dashed outline. In D it has a dotted outline. ( d )

3.  a                      b                      c                      d                      e

(      )

4.  a                      b                      c                      d                      e



## Order and Position

Shapes can be in different positions inside a figure. They can also change order.

Warm Up

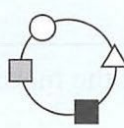
1. Which shape is **one place clockwise** from the **circle** in each figure?

a.



star

b.



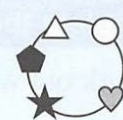
c.



d.



e.



2. How many figures on the right have the **same order** of **shapes** going from top to bottom as the figure inside the square (ignoring size)?

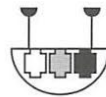
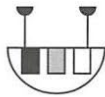


Number of figures with the **same order** of shapes:     

### Find the Figure Like the First Three

Work out which option is most like the three figures on the left.

Example:



a

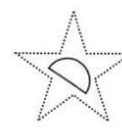
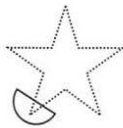
b

c

d

In all figures, the three inner shapes go from left to right in the order: black, grey, white. ( d )

3.



a

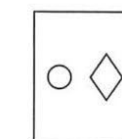
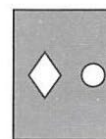
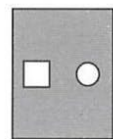
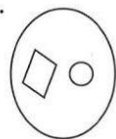
b

c

d

(      )

4.



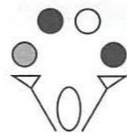
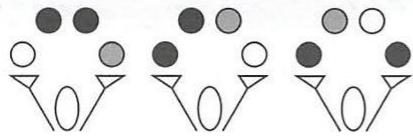
a

b

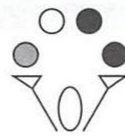
c

d

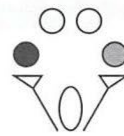
5.



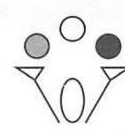
a



b



c



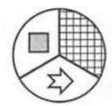
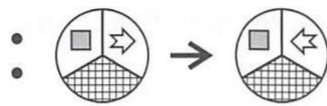
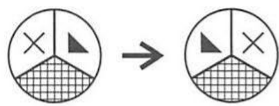
d

( )

**Complete the Pair**

Look at how the first figure is changed, and then work out which option would look like the third figure if you changed it in the same way.

Example:



a

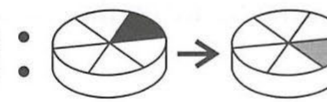
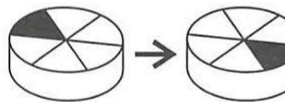
b

c

d

The top left-hand shape and the top right-hand shape swap places. ( C )

6.



a

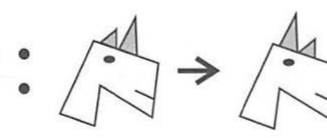
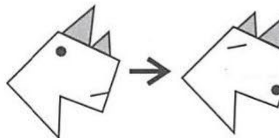
b

c

d

( )

7.



a

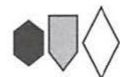
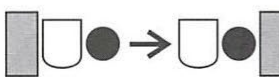
b

c

d

( )

8.



a

b

c


d


# Rotation

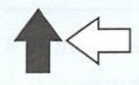
Shapes can be rotated (or turned) by different amounts, and in two different directions.


## Warm Up


1. The **black** shapes are rotated **90 degrees** to become the **white** shapes. Work out which **direction** they are rotated. Write **C** for clockwise or **A** for anticlockwise.


a.   C

b.     

c.     







d.     

e.     

f.     

2. How many figures on the right are **identical** to the figure inside the square apart from being **rotated differently**?

*See p.86 for more about rotation.*

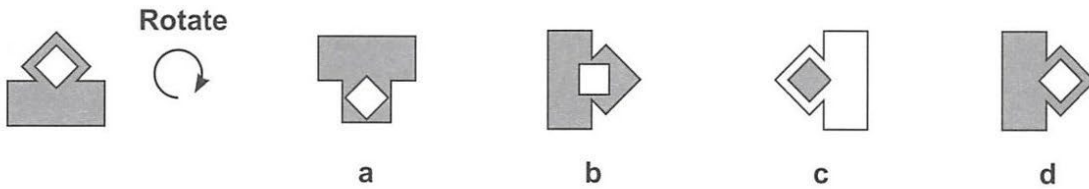








Number of identical figures:    

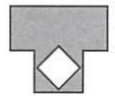
## Rotate the Figure

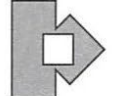
Work out which option would look like the figure on the left if it was rotated.

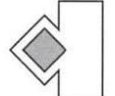
Example:

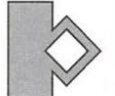


Rotate 

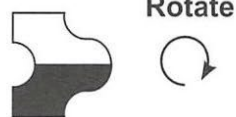

a. 


b. 


c. 


d. 


The figure rotates 90 degrees clockwise. (  d  )



3.  Rotate 

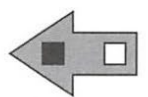
a. 

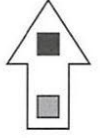
b. 

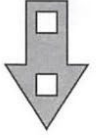
c. 


d. 

4.  Rotate 

a. 

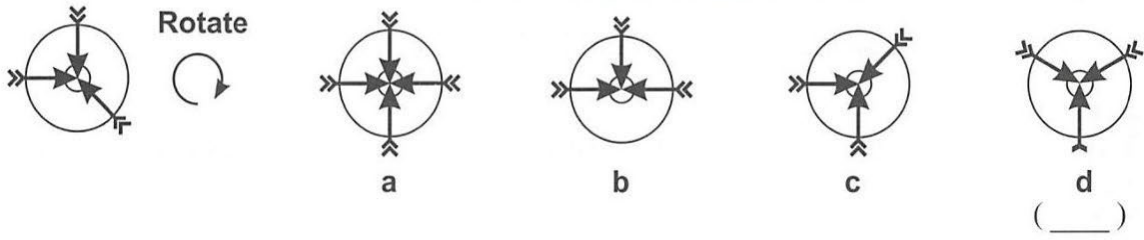
b. 

c. 

d. 

(      )

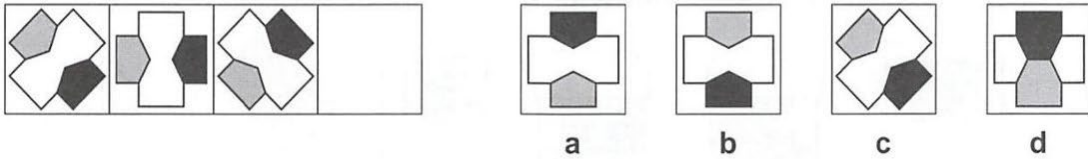
5.



**Complete the Series**

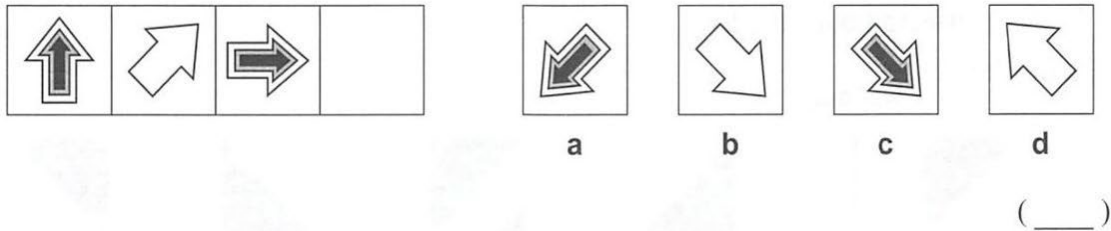
Work out which of the options best fits in place of the missing square in the series.

Example:

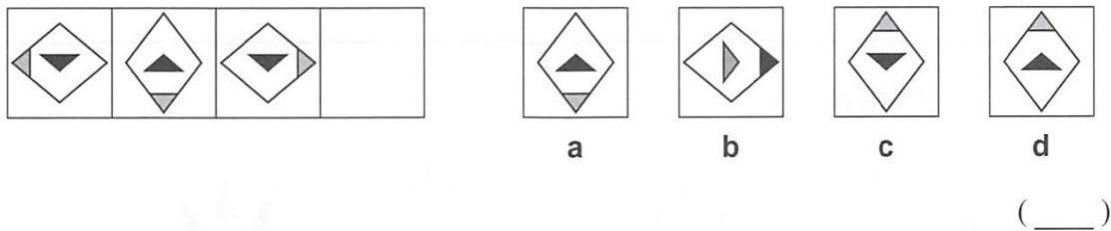


The figure rotates 45 degrees anticlockwise in each series square. ( a )

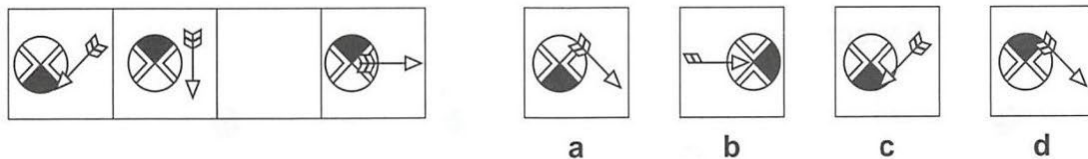
6.



7.



8.



## Quick Lesson Recap

1)				
		2	3	5
x			7	8

2)				
		8	6	9
x			4	7

3)				
6	2	9	3	4

4)  $1.025 \div 100 =$

5)  $47.2 \times 1000 =$

6)  $89 \div 100 =$

7) Write a pair of sentences, one in the active tense and one in the passive tense.

Active tense =

Passive tense =

## Vocabulary Homework



# Vocabulary 2

Learn the following words and then answer the questions.

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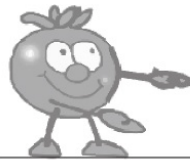
- Advise** (v.): offer suggestions about best actions, help with decisions.  
The librarian began to advise the student about which books to borrow.
- Savage** (adj.): violent, vicious, brutal, wild.  
Many wild animals are dangerous, but hyenas are especially savage.
- Intimate** (adj.): closely acquainted or familiar / private, personal.  
Ben and Alex were intimate friends, having known each other since they were nine years old.
- Glimmer** (n.): twinkle, gleam, sparkle.  
In distant space I could still see the glimmer of the comet, as it sped through the darkness.
- Safeguard** (v.): defend, protect from future dangers, uphold.  
We have to safeguard our homes against the danger of fire, by installing alarms.
- Overthrow** (v.): conquer, defeat the previous ruling class, topple.  
Guy Fawkes intended to overthrow the King and Government, by blowing up the Houses of Parliament.
- Qualify** (v.): be suitable, meet the requirements, be entitled to, pass.  
I asked my team if we had enough points to qualify for the second round of the competition.
- Reunite** (v.): re-join, reconcile, unify.  
There are several websites which aim to reunite old friends who have lost touch.
- Aerial** (adj.): airborne, mid-air, floating.  
Nowadays, small drones are used for aerial photography, producing a bird's-eye view.
- Operate** (v.): work, control, function, use.  
My grandmother can barely operate her new smartphone as her fingers are too stiff.



## Synonym Exercise A

Write the word from the vocab list which is most **similar** in meaning next to each word listed below.

1. Brutal .....
2. Airborne.....
3. Guide .....
4. Defend.....
5. Personal .....
6. Reconcile.....
7. Gleam .....
8. Defeat .....
9. Control .....
10. Pass.....



## Exercise B

Write the most suitable word from the vocab list in the spaces below. You might need to change the form of the word; for instance, walk might become walked.

1. My godfather and my father have formed an ..... bond over many years.
2. Marley was overjoyed upon learning she would ..... for the national finals.
3. The purpose of the peace talks was to ..... the divided country.
4. The sun's rays reflected off the sea giving it a soft ..... as we drove along the coast.
5. Countries often have armies in order to ..... their borders.
6. Sometimes it is necessary to ..... a leader who has become a tyrant.
7. The boy asked his mother if she could ..... him on what to do.
8. The professor described the .....methods of torture that were used during the war.
9. In order to work as a mechanic, you need to know how to ..... machinery.
10. The ..... view from the plane was breath-taking as the dawn appeared.

## Homework – Memorise the following two pages:

(You will have a few weeks to memorise all of this)

Fraction	Decimal	Percentage
<b>1</b>	<b>1</b>	<b>100%</b>
<b><math>\frac{1}{2}</math></b>	<b>0.5</b>	<b>50%</b>
<b><math>\frac{1}{3}</math></b>	<b>0.333</b>	<b>33%</b>
<b><math>\frac{1}{4}</math></b>	<b>0.25</b>	<b>25%</b>
<b><math>\frac{1}{5}</math></b>	<b>0.2</b>	<b>20%</b>
<b><math>\frac{1}{6}</math></b>	<b>0.166</b>	<b>16.6%</b>
<b><math>\frac{1}{7}</math></b>	<b>0.142</b>	<b>14.2%</b>
<b><math>\frac{1}{8}</math></b>	<b>0.125</b>	<b>12.5%</b>
<b><math>\frac{1}{9}</math></b>	<b>0.111</b>	<b>11.1%</b>
<b><math>\frac{1}{10}</math></b>	<b>0.1</b>	<b>10%</b>
<b><math>\frac{1}{20}</math></b>	<b>0.05</b>	<b>5%</b>

# Conversion Rates

## Time

1 Minute = 60 seconds

1 Hour = 60 Minutes

1 Day = 24 Hours

1 Week = 7 Days

1 Fortnight = 2 Weeks

1 Year = 52 Weeks

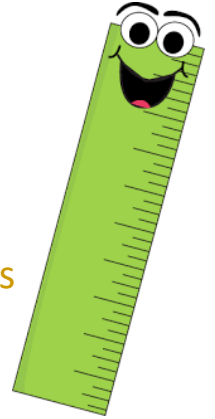
1 Year = 12 months

1 Year = 365 Days

1 Decade = 10 Years

1 Century = 100 Years

1 Millennium = 1000 Years



## Length

1 Centimetre = 10 Millimetres

1 Metre = 100 Centimetres

1 Kilometre = 1000 Metres

5 Miles ≈ (approximately equal to) 8 Kilometres

1 Foot = 12 Inches

1 Yard = 3 Feet

## Capacity

1 Kilolitre = 1000 Litre

1 Litre = 1000 millilitres

1 Litre = 100 centilitres

1 Centilitre = 10 millilitres



## Weight



1 Tonne = 1000 Kilograms

1 Kilogram = 1000 Grams

1 Gram = 100 Centigrams

1 Gram = 1000 Milligrams

1 Stone = 14 Pounds

1 Pound = 16 Ounces

Learn a few of these each day!  
Perhaps you can tick them off as  
you learn them?

## Square Numbers

A square number is the product of a number multiplied by itself.

For example  $1^2 = 1 \times 1 = 1$ , so 1 is the first square number and  $2^2 = 2 \times 2 = 4$ , so 4 is the next square number. You should memorise the first 15 square numbers:

**1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144, 169, 196 and 225**

## Cube Numbers

A Cube number is the product of a number multiplied by itself 3 times.

For example  $1^3 = 1 \times 1 \times 1 = 1$ , so 1 is the first cube number and  $2^3 = 2 \times 2 \times 2 = 8$ , so 8 is the next cube number. You should memorise the first 10 cube numbers:

**1, 8, 27, 64, 125, 216, 343, 512, 729 and 1000**

## Prime Numbers

A prime number is a number with 2 factors, 1 and itself, so the first prime number is 2 as its factors is 1. You should learn to recognize the prime numbers up to 100:

**2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47, 53, 59, 61, 67, 71, 73, 79, 83, 89 and 97**

**1 x**

$1 \times 1 = 1$   
 $1 \times 2 = 2$   
 $1 \times 3 = 3$   
 $1 \times 4 = 4$   
 $1 \times 5 = 5$   
 $1 \times 6 = 6$   
 $1 \times 7 = 7$   
 $1 \times 8 = 8$   
 $1 \times 9 = 9$   
 $1 \times 10 = 10$   
 $1 \times 11 = 11$   
 $1 \times 12 = 12$

**2 x**

$2 \times 1 = 2$   
 $2 \times 2 = 4$   
 $2 \times 3 = 6$   
 $2 \times 4 = 8$   
 $2 \times 5 = 10$   
 $2 \times 6 = 12$   
 $2 \times 7 = 14$   
 $2 \times 8 = 16$   
 $2 \times 9 = 18$   
 $2 \times 10 = 20$   
 $2 \times 11 = 22$   
 $2 \times 12 = 24$

**3 x**

$3 \times 1 = 3$   
 $3 \times 2 = 6$   
 $3 \times 3 = 9$   
 $3 \times 4 = 12$   
 $3 \times 5 = 15$   
 $3 \times 6 = 18$   
 $3 \times 7 = 21$   
 $3 \times 8 = 24$   
 $3 \times 9 = 27$   
 $3 \times 10 = 30$   
 $3 \times 11 = 33$   
 $3 \times 12 = 36$

**4 x**

$4 \times 1 = 4$   
 $4 \times 2 = 8$   
 $4 \times 3 = 12$   
 $4 \times 4 = 16$   
 $4 \times 5 = 20$   
 $4 \times 6 = 24$   
 $4 \times 7 = 28$   
 $4 \times 8 = 32$   
 $4 \times 9 = 36$   
 $4 \times 10 = 40$   
 $4 \times 11 = 44$   
 $4 \times 12 = 48$

**5 x**

$5 \times 1 = 5$   
 $5 \times 2 = 10$   
 $5 \times 3 = 15$   
 $5 \times 4 = 20$   
 $5 \times 5 = 25$   
 $5 \times 6 = 30$   
 $5 \times 7 = 35$   
 $5 \times 8 = 40$   
 $5 \times 9 = 45$   
 $5 \times 10 = 50$   
 $5 \times 11 = 55$   
 $5 \times 12 = 60$

**6 x**

$6 \times 1 = 6$   
 $6 \times 2 = 12$   
 $6 \times 3 = 18$   
 $6 \times 4 = 24$   
 $6 \times 5 = 30$   
 $6 \times 6 = 36$   
 $6 \times 7 = 42$   
 $6 \times 8 = 48$   
 $6 \times 9 = 54$   
 $6 \times 10 = 60$   
 $6 \times 11 = 66$   
 $6 \times 12 = 72$

**7 x**

$7 \times 1 = 7$   
 $7 \times 2 = 14$   
 $7 \times 3 = 21$   
 $7 \times 4 = 28$   
 $7 \times 5 = 35$   
 $7 \times 6 = 42$   
 $7 \times 7 = 49$   
 $7 \times 8 = 56$   
 $7 \times 9 = 63$   
 $7 \times 10 = 70$   
 $7 \times 11 = 77$   
 $7 \times 12 = 84$

**8 x**

$8 \times 1 = 8$   
 $8 \times 2 = 16$   
 $8 \times 3 = 24$   
 $8 \times 4 = 32$   
 $8 \times 5 = 40$   
 $8 \times 6 = 48$   
 $8 \times 7 = 56$   
 $8 \times 8 = 64$   
 $8 \times 9 = 72$   
 $8 \times 10 = 80$   
 $8 \times 11 = 88$   
 $8 \times 12 = 96$

**9 x**

$9 \times 1 = 9$   
 $9 \times 2 = 18$   
 $9 \times 3 = 27$   
 $9 \times 4 = 36$   
 $9 \times 5 = 45$   
 $9 \times 6 = 54$   
 $9 \times 7 = 63$   
 $9 \times 8 = 72$   
 $9 \times 9 = 81$   
 $9 \times 10 = 90$   
 $9 \times 11 = 99$   
 $9 \times 12 = 108$

**10 x**

$10 \times 1 = 10$   
 $10 \times 2 = 20$   
 $10 \times 3 = 30$   
 $10 \times 4 = 40$   
 $10 \times 5 = 50$   
 $10 \times 6 = 60$   
 $10 \times 7 = 70$   
 $10 \times 8 = 80$   
 $10 \times 9 = 90$   
 $10 \times 10 = 100$   
 $10 \times 11 = 110$   
 $10 \times 12 = 120$

**11 x**

$11 \times 1 = 11$   
 $11 \times 2 = 22$   
 $11 \times 3 = 33$   
 $11 \times 4 = 44$   
 $11 \times 5 = 55$   
 $11 \times 6 = 66$   
 $11 \times 7 = 77$   
 $11 \times 8 = 88$   
 $11 \times 9 = 99$   
 $11 \times 10 = 110$   
 $11 \times 11 = 121$   
 $11 \times 12 = 132$

**12 x**

$12 \times 1 = 12$   
 $12 \times 2 = 24$   
 $12 \times 3 = 36$   
 $12 \times 4 = 48$   
 $12 \times 5 = 60$   
 $12 \times 6 = 72$   
 $12 \times 7 = 84$   
 $12 \times 8 = 96$   
 $12 \times 9 = 108$   
 $12 \times 10 = 120$   
 $12 \times 11 = 132$   
 $12 \times 12 = 144$



