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The answers to all the questions and activities in this printable PDF can be found in the complete eBook, which is available for purchase from all major eBook retailers.



Are you alert and ready to answer questions about BIG numbers?

(1)) What is the value	e of each underlin	ed digit?	
Ŭ	6, <u>8</u> 04	5 <u>4</u> ,312	<u>7</u> 43,890	<u>2</u> ,403,223
2) Write each of the	ese amounts in wo	ords.	
	a. £3,208			
	b. 12,645 km			
	c. £132,500			
3) Write each amou a. 5,000 + 600	unt in a simpler for + 12 b. 42,0	rm.)00 + 380	c. 124,000 + 76
4) Write each amou a. Twenty six thou eighty three. b. Four hundred a two hundred a c. Two million and 	unt in numbers. usand, three hund and thirty seven th and eight. d eighteen.	red and ousand,	
5) If I write one milli how many Os wil	on in numbers, I there be?		

Make some large numbers with one, two, or three 0s on the end, for example 20, 300, and 62,000. How many 10s are the same as each amount? The answers to the examples would be 2, 30, and 6,200.

6 John has $\pounds 12,000$ in savings.

Mary has $\pounds 8,000$ in savings and is given another $\pounds 500$.

Who has the most in savings?

7 How many hur same as each	ndreds are the amount?
a. 2,000	
b. 12,600	
c. 645,000	

(8) A couple win £14,235,000 on the lottery.

Write that amount in words.





You will need to know how to change between units, such as kilometres to metres, for these questions. Make sure you have a ruler too before starting.



Measure the length of parts of your body, such as your longest finger, your foot, your nose, your thumb, your arm, and your big toe. Write the answer in centimetres (cm) and millimetres (mm).

6) Write each amount in centimetres (cm).

7

a. 48 mm b. 106 mm c. 8 mm

) Which is the best unit to measure each item?

ltem	Unit
The distance between London and Cardiff	
The length of a caravan	
The height of a stool	
The length of a fingernail	

8) Which is longer, a kilometre (km) or a mile?

9 Write each amount in millimetres (mm).		10	The length c is usually me	of a kitchen w easured in mill	vork surface imetres (mm).
a. 2.6cm			What is the kitchen work	length of ead surfaces in t	ch of these millimetres?
b. 15.9cm			a. 2.8 m	b. 4.25 m	c. 3.5 m
c. 21.1cm					

2-D shapes

Do you know the difference between the terms area and perimeter? Let us find out. Remember: always add the correct units after the number.





What comes next?

These questions are about putting numbers in order and completing number sequences. Can you work out the rules of these sequences?



Try writing your own number sequences. Think about the rule that each of your sequences have. Then write out the sequence, missing out a few numbers. Show it to a friend or family member. Can they work out the rule and fill in the missing numbers?

5	5 This is a well-known sequence. a. Continue the sequence.									
	1]	2	3	5		8			
	b. Expl	ain how	the seq	uence w	orks.					
6) Homer	runs 2 k	m on Ma	onday,	7	7 Describe each sequence in a				
	6 km on Tuesday, and 18 km on Wednesday. If the same sequence					a . 2	25	50	75	100
continues, how far will Homer run on Thursday?			b. 1	20	60	30	15			
8) Write t smalles a. 1.8	Write these amounts with the smallest first. a. 1.8 m 190 cm 1,700 mm b. 2 400 ml 3 81 900 ml) A po a. H	entag Iow r en pe	on has nany sia ntagon:	five sid des will s have?	es.
	b. 2,4					b . ⊦ 1	łow r 00 p	nany sia entagor	des will ns have	?
				c . ⊢ 1	łow n ,000	nany sia pentag	des will ons hav	/e?		
(10) Try and continue this sequence without using a calculator.										

40

20

10

5

12 Tables and charts

Tables and charts are very useful ways of presenting information. Read them carefully to answer these questions.

This table shows the results of a survey in which teenagers were asked who their favourite pop groups were.

Look at the table and then answer the questions.

Pop group	Boys	Girls
Sun Patrol	12	7
Arctic Penguins	7	0
Take This	2	16
Crimson 5	15]

1 Which group was preferred by most teenagers?	2 Which group did no girl like?
3 How many more boys than girls preferred Sun Patrol?	4 How many teenagers were questioned in the survey?

5) Which groups have a difference of 14 between boy and girl preferences?

Use the Internet to find the temperature at Brasilia in Brazil and Anchorage in Alaska on the same day. What is the difference in temperatures? Choose some other places around the world to compare the temperatures.

This chart shows midday and midnight temperatures in degrees Celsius on a day in August.

Look at the chart and then answer the questions.

Place	Midday (°C)	Midnight (°C)
Portsmouth	23	14
Penzance	26	12
Glasgow	18	14
Cardiff	21	15
Norwich	15	10

6) a. Which place had the highest temperature at midday?

b. Which place had the highest temperature at midnight?



8	Which place had a difference of six degrees	
\bigcirc	between midday and midnight?	

9 Which place had the largest change in temperature between midday and midnight? 10 Which two places had the same temperatures at midnight?

Adding challenge

Adding large numbers together can get tricky. Are you ready for the challenge?



What do you notice about the three answers?



10 A teacher works out that he spends 464 hours marking books in his first year of teaching, 437 hours in his second year, and 488 hours in his third year.

Over the three years, what is the total number of hours the teacher has spent marking books?

Measuring weight

You will need to know how to read scales and change between units, such as kilograms to grams, for these questions. Good luck!



Weigh a packet of biscuits (it does not matter if they are partly eaten). Write the amount in grams (g) and then again in kilograms (kg). Weigh some vegetables and fruits and record these amounts in grams and then in kilograms, too.

6 Amir puts on 0.45 kg weight after eating a big meal. Before the meal, Amir weighed 36.5 kg.

How much does Amir

weigh after the meal?

 $\overline{7}$

A builder needs 200 kg of sand in order to make cement. Sand comes in bags of 25 kg.

How many bags will the builder need?

8 A box of Flakeywheats weighs 860g when full.



Subtraction

18

Subtracting large numbers to find the difference can get tricky. Are you ready for the challenge?

 Salima's best friend lives 380 km away but another good friend lives just 36 km away. How much closer is the nearer friend? 	2 a. 366 - 184 b. 2921 - 1603 c. 7431 - 2888
3 Jamal has to walk 8,000 m each week to try and keep fit. So far this week, he has walked 3,750 m. How much farther must he walk?	 Bogdan has £ 1,800 saved up for a holiday but spends £ 275 on clothes. How much does Bogdan have left?
5 a. 1000 - 750 b. 250 - 180	c. 4200 - 3700

Write some subtracting challenges for your friends and family. For example: I am thinking of a number. If I subtract 2,109 from this number, the answer is 4,825. What is my number?





Beat the clock 1

Here are 60 quick-fire questions to complete in 10 minutes. That is 10 seconds for each one! Can you beat the clock?



Add this list of numbers without a calculator. Can you spot a simple trick to help you? 8, 12, 24, 16, 1, 19



22	
Rounding	numbers

Writing a number as an approximation by rounding it to the nearest 10, 100, or 1,000 can make the number easier to work with.

1 a. The distance between Winchester and London is 99.23 km. What is this distance to the nearest km?					
b. The distance between London and Mumbai is 4,468.14 miles. What is this distance to the nearest 100 miles?					
2 These are the amounts three adults saved for a new car: Witold – £3,480 Krysta – £2,850 Rudo – £3,444 How much has each saved to the nearest £100?					
3 Which of these is closest to 8,000 when rounded to the nearest 100?	4 What is each amount to the nearest 100?				
a. 7,680 b. 8,290	a. £650				
	b . £1,060				
c. 7,750	c. £808				
5 These are the distances of three places from London.					
Manchester 201.5 mi	les				
Birmingham 119 miles					
Glasgow 405.8 mi	les				
Round each distance to the nearest 10 miles.					

Use the digits 3, 6, 7, and 9 to create your own four-digit number. Can you round this number to the nearest 10, the nearest 100, and the nearest 1,000? Try making other four-digit numbers and doing the same again.



Estimate how long it will take to travel 6,000 miles.







Use your knowledge of fractions to solve these problems. Are you ready? Go!







Here are some challenging questions using different measuring units of volume for solids and liquids.



A kettle has a maximum volume of 4 litres. The kettle is filled from a jug which holds 500 ml.

How many jugs of water will be needed to fill the kettle?

Time filler: A measuring jug can hold 800 ml. If the jug is three-quarters full, how much is in the jug? How much would five-eighths be? Can you work out the amount if the jug was three-fifths full? Anne fills a fish tank with glasses of warm water. The glass holds 300 ml of water. If the fish tank needs 9,000 ml of water, how many times will Anne need to fill the glass? **8**) The volume of each box is 12 cm³. John needs to place 144 cm³ of chocolate in boxes. How many boxes will John need? 9 Read the scale carefully. How much water is there in each jug? 500 ml 500 ml 400 ml 400 ml 300 ml 300 ml 200 ml 200 ml 100 ml 100 ml 0ml 0ml b. a. 10 A cylinder can hold 100 litres of gas but is $\frac{3}{4}$ empty.

How much gas is still in the cylinder?

Multiplying challenge

Are you feeling confident with knowing the times tables? Give these a try. Do not be tricked – some of these questions are multiplication in disguise.



If you have 10 10p pieces, 5 20p pieces, and 20 5p pieces, how many ways can you find to make a total of £1.75?

6 Work out each multipli	cation sum.	
a. 150 × 8	b. 270 × 10	c. 490 ×9
Ary works out she had exactly eight weeks und summer holidays begin. How many days will N have to wait?	ns to wait til the Aary ()	sends 20 texts a day for ays. Each text costs 10p. much do the texts Shen?
9 Work out each multiplie	cation sum.	
a. 9 × 6	b. 19 × 20	c. 49 <u>× 50</u>
10 Multiply nine by eight c	and then double the ans	swer.

Data charts

Charts are a useful way of finding out information fast. Can you answer these questions in less than 10 minutes?

This chart shows how many children in each class went to the whiteboard at different times during a day.

Class	Morning	Afternoon
5W	8	4
6Н	0	2
4R	10	7
5P	12	9



Find out how many texts you and your family have sent this week and create a bar chart. Or choose another subject, such as the number of hours you watched television or listened to music.

Look at this bar chart and then answer the questions.



³⁴ Division challenge

Put your times tables into practice and watch out for the questions with remainders. Good luck!





36 Telling the time needs lots of practice. What is the time now? What will be the time in 10 minutes when you have finished?
1) If Christmas Day is on a Tuesday, what

2 It takes Nima from 11.18 a.m. to 2.30 p.m. to complete a train trip. How long is Nima's trip?

day will be New Year's Day?

(3) Write down the next five leap years after 2012.

4) **a.** What is 7.15 a.m. on the twenty-four hour clock system?

b. What is 8.30 p.m. on the twenty-four hour clock system?

5) It takes Gizela 90 minutes to cycle to work.

If Gizela leaves home at 7.45 in the morning, what time will she arrive at work?

Think of a time on a 12-hour clock. What is 20 minutes earlier? What is 45 minutes later? Try answering the same questions on a 24-hour digital clock. Which was easier for you?

6) Draw the correct time on each clock face.



Negative numbers

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Do you feel confident about numbers that are lower than 0? These are useful to know when talking about below-freezing temperatures.





Beat the clock 2

Test your times tables speedy recall skills.

$$1 6 \times 4 =$$

$$4 42 \div 6 =$$

$$7 21 \div 7 =$$

$$10 6 \times 8 =$$

$$3 6 \times 9 =$$

$$13 6 \times 9 =$$

$$16 6 \times 11 =$$

$$19 12 \times 0 =$$

$$22 36 \div 6 =$$

$$25 9 \times 3 \\ \times 3 \\ \times 3 \\$$

.

$$2 56 \div 7 =$$

$$5 6 \times 6 =$$

$$8 6 \times 7 =$$

$$1 28 \div 7 =$$

$$1 28 \div 7 =$$

$$1 20 7 \times 6 =$$

$$2 7 \times 6 =$$

$$2 3 84 \div 7 =$$

$$2 3 84 \div 7 =$$

$$2 4 \times 5 =$$

$$2 9 12 \times 4 =$$

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(3)
$$30 \div 6 =$$

(6) $48 \div 6 =$
(9) $2 \times 0 =$
(12) $5 \times 0 =$
(15) $35 \div 5 =$
(18) $49 \div 7 =$
(21) $56 \div 8 =$
(24) $7 \times 7 =$
(24) $7 \times 7 =$
(30) 11
 $\times 4$

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Why not keep a record of how many answers were right and then return to this page another time to see if you can do even better?

317 x 9 =	
347 x11 =	
37 8 x 4 =	
40 9 x 6 =	
43 4 x 11 =	
(46) 9 x 7 =	
499x11=	
52 11 x 10 =	
55 8 × 7	
58 7 × 12	

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32 32 ÷ 8 =	
35 40 ÷ 8 =	
389 x 5 =	
(41) 11 x 11 =	
(44) 9 x 5 =	
(47) 9 x 8 =	
50 9 x 9 =	
53 99 ÷ 9 =	
56 8 <u>× 6</u>	
59 6 <u>x 11</u>	

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33 8 x 3 =	
36 20 ÷ 10 =	
39 48 ÷ 6 =	\bigcirc
42 54 ÷ 9 =	
45 54 ÷ 6 =	
48 66 ÷ 6 =	\bigcirc
51)72 ÷ 6 =	
547 x 8 =	
57 5 x 12	
60 12 x 6	

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You will know about using decimals from solving money problems. Here are some other ways they come in useful.



What is four-fifths of each of these amounts: $\pounds 10.00$, $\pounds 25.00$, and $\pounds 2.50$? Check your answers with a friend and set each other some more money challenges.



Measuring liquids

Test your knowledge of using liquid volume measurements, such as litres and millilitres.





Time Are ye (ml) o the tin 450 m	e filler: ou quicker converting litres (l) to millilitres r millilitres to litres? Give these a try and use ner to find out: 0.8l = ml; 2.35l =ml; nl = l; 8,050 ml = l; 32 ml = l
6 A bottle of health drink contains 800g of liquid.	A litre is about 1.76 pints. Change each amount to pints.
How much liquid will be held in six bottles?	a. 3 litres
	b. 5 litresc. 10 litres
 A cube has a volume of 125 cubic centimetres (cm³). 	9 A can of drink holds 440 ml.
What will be the volume of six cubes?	How much drink will there be in three cans? Give the answer in litres.
(10) In the UK, we sometimes meas	ure liquids in gallons.

45

A gallon is about 4.5 litres.

Work out each amount in litres.

a. 4 gallons	b. 10 gallons	c. 0.5 gallons

46 Money challenge Knowing how to work out money problems can be very useful for when you actually use money in shops. Have a go at these!



Write some money challenges for your friends and family. For example: three children give these amounts to charity: 87 p, £1.23, and 92 p. How much do they give altogether?

7) Work out each sum.

a. $\pounds 5.00 - \pounds 2.86 =$

b. $\pounds 3.00 - \pounds 1.67 =$

c. $\pounds 10.00 - \pounds 4.18 =$

6 A driver has to put petrol in her car. Petrol costs £1.44 per litre.

If the lady puts 20 litres in her car, how much will that cost?

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8) Three coins add up to $\pounds 2.60$.

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What are the coins?

9 A father takes four children to a theme park. The entrance fee for each child is £28 and each child has £10 to spend.

How much will the father have to pay?

10 The cost of a new house is £249,950. The legal fees are £1,850 and the estate agent fees are £2,500.

What is the total cost?

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These questions are all about angle turns. Make sure you have a protractor before you start.



Can you draw an equilateral triangle with sides 6 cm and each angle 60°? Now draw a square with 5 cm sides. Use your protractor to check that each angle is 90°. Design your own shape and then measure the angles.



Problem solving

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Here are some maths problems to solve. Read them carefully to find out what type of sum you need to do for each one.

1) Two numbers added together make a total of 640. One of the numbers is 175. What is the other number?

2 A junior school has 240 children. A quarter of the children are in Year 3. How many children are not in Year 3?

3) If Homer eats ten doughnuts for breakfast and twice as many for lunch, how many doughnuts will Homer have eaten in total?



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4 Jason spends £38.65 on a birthday present for Kylie and pays with a £50 note. How much change will Jason receive?

5) Out of 80 tomatoes, one-fifth are rotten. How many tomatoes are not rotten?

Can you write your own mathematical problems? Think of a setting such as playing a sport, cooking, or at the shops. Decide if it will be an addition, subtraction, multiplication, or division problem.

(6) It costs Clara 10p each time she sends a text. If Clara spends £7.30 on texts, how many will she have sent?

7 Bart earns £3.50 an hour working for Marge. If Bart works for eight hours, how much will he earn?

16 25

8) Write the next two numbers in this sequence.

4

9

9 Multiply the number of days in a week by the number of hours in a day and add the number of seconds in a minute.

36

10 The population of a small town is 12,840. One-tenth of the population is aged 5 or under.

How many people are more than 5 years old?



Venn diagrams and Carroll diagrams are very useful for finding out information about groups quickly. Ready to have a go?

This diagram shows the results when children were asked about the fruits they liked. Look at the diagram and then answer the questions.





53

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Look at this diagram and then answer the questions.

Types of numbers	Multiples of 3		Multiples of 5			
Odd numbers	9	15	21	15	25	45
	3	27	39	35	105	85
Even numbers	6	12	24	20	50	100
	18	30	60	80	30	70

6 Which is the largest number which is even and a multiple of 3?	
7 Which is the smallest number which is odd and a multiple of 5?	
8 What do you notice about the odd numbers which are multipl	es of 5?

(9) Put 72 in the correct area.

SA What is the chance?

Is it likely or not likely you will complete these questions in less than 10 minutes? Good luck!

1 What is the probability the die will land on 6?	2 What is the probability the die will not land on 6?
3 Ten people enter a competition bu	ut only one can win.
What are the chances of winning	?
4 Eight people enter a competition f	or two prizes.
What are the chances of winning	a prize?
5 A bag contains four red pastilles a closes her eyes and chooses one	and four green pastilles. A girl pastille from the bag.
What is the likelihood she will cho	oose a green pastille?

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Write three probability questions of your own about today's weather. Ask someone in your family those questions and see if they agree. 6) Mark on the line where you think each event should go. Impossible Unlikely Even Likely Certain **a.** It will snow in England in May. **b.** It will be cold in the Antarctic. 7 A box contains six coloured balls. Two balls are red, two are green, and two are blue. a. A child closes his eyes and takes out a ball. What is the chance the ball will be red? b. The ball is put back in the box. Another child takes out a ball. What is the chance the ball will not be green? 8) Place each event on the line. 0.25 0.5 0.75 1 0 **a.** The chance of a tossed coin landing on heads. b. The chance of the Atlantic Ocean freezing over. Make up two events of your own to go on this line 9 and mark their positions. Impossible Unlikely Even Likely Certain b. Q. (10) The chances of winning the main prize in the National Lottery are about 14,000,000 to one. How would you describe that chance?

Time filler:

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Let us pick up the pace! Here are some problems to solve about speed. How quickly will you be able to answer them?

1	A car travels at 70 mph on the motorway for three hours.	
	How far will the car travel?	
2	A cyclist keeps the same speed for 15 minutes and travels 4 km.	
	What is the speed of the cyclist in km per hour?	
3	A man can walk at a steady pace of four miles per h How long will it take the man to	IOUľ.
	a. walk 20 miles?b. walk one mile?	
4	A cyclist travels 15 km in an hour. A motorcyclist covers twice the distance in half the time.	
	What is the speed of the motorcyclist?	
5	One child walks 200m in two minutes. Another child walks 500m in five minutes. Which child is faster?	

Time filler: Here is an even trickier problem to solve: A cruise ship leaves Southampton at 5.00 p.m. and keeps the same speed until it reaches Le Havre in France at 10.30 p.m. If the ship travels at 22 mph, how far has it travelled? **6**) If an aeroplane can travel at 380 mph, how far will it travel in seven hours?) A charity walker does an average distance of 20 miles a day and walks for eight hours each day. What is the walker's speed in miles per hour? 8) If a car travels at 60 mph, how far does it travel each minute? A French train travels at 160km per hour. 9 How far does the train travel in 15 minutes? (10) During a race, a motorcyclist travels 4 km in two minutes. What is the speed of the motorcyclist?

Analyzing data

58

Check that you know the meaning of frequency, mean, mode, and median before you begin. Then you can start confidently.

This table shows the number of questions children correctly answered in a short test.

Correct answers	5 correct	4 correct	3 correct	2 correct	1 correct
Number of children	6	8	5	4	2

1) What was the most frequent number of correct answers?





3) How many children had less than three correct answers?

4) What fraction of the children had five correct answers?

5) How many children had more than three correct answers?

Have a go at this extra question to solve: Bill is 1.1 m tall, his sister is 1.6 m, and their father is 1.8 m. What is their mean height? Show your workings and then ask someone to check if they agree with your answer.

6 What is the mean value of each group?									
	a.	2	7	12					
	b.	20	6	10	24				
Vhat is the median of each group?									
	a.	3	6	2]]	8	4	
	b.	18	27	19	23	30			
8 What is the mode of each group?									
	a.	2]]	2	3	1	4	
	b.	0	0	0]	0	1	1	
9 Olly has 36p and Katie has 44p. What is the mean amount they have?									
10 Five children bake cupcakes for a charity sale. The children make a total of £60 for the charity. What is the mean amount made by each child?									

Equivalent fractions

Keep your wits about you for these questions. Equivalent fractions may look different but they have the same value.

1 Which of these fractions is not equivalent to $\frac{1}{4}$?							
2/8	10/40	4/8	5/20				
2 Which of these fractions is equivalent to ¹ /5?							
2/20	4/5	3/15	10/500				
3 Write two of your own fractions which are equivalent to $\frac{3}{4}$.							
Part of these fractions equivalent to ² / ₃ are filled in. What are the missing numbers?							
4/?		%	?/12				
5 All these fractions are equivalent to a simpler fraction. What is the simpler fraction?							
¹ 2/ ₁₈	24/ ₃₆	20/ ₃₀	200/300				

Cut out 20 small cards. Write down a different fraction on 10 of these cards. For each fraction, write an equivalent fraction worth the same on another card. Use your cards to play a game of snap with a friend.





You will never get lost if you know how to read grid references and can use coordinates. Test your skills.



Mark four of your own points on the first grid and ask someone in your family to name them correctly. Look at an actual map. Find a school. What grid number is it in?



6 Mark and label these points on the grid and join them up.

A at (1,1)

C at (4,4)

D at (4, 1)

7) What shape is made in question 6 and what is its area?

8 Mark and label these points on the grid. E at (1.5,0) F at (5.5,0) G at (7,2.5) H at (3,3.5)

9) Mark and label these points on the grid.

l at (2.5,6.5) J at (4.5,1.5)

.....

10 What are the coordinates half way between (0,3) and (8,3)?



Beat the clock 3

Test your quick recall mental maths skills. You have 10 seconds or less to answer each one if you want to beat the clock.



Is this equation true: $45 - 18 = 9 \times 3$? What does each side equal? Can you think of 5 equations like this that are true and 5 that are not? Test them on your family.

(3)

$$60 - 41 =$$
 (3)
 $25 \times 3 =$
 (3)
 $26 + 104 =$

 (3)
 $70 \div 5 =$
 (3)
 $200 + 650 =$
 (3)
 $56 - 14 =$

 (3)
 $75 \times 3 =$
 (3)
 $100 - 56 =$
 (3)
 $120 \div 40 =$

 (4)
 $126 + 243 =$
 (4)
 $52 \div 4 =$
 (4)
 $200 - 130 =$

 (4)
 $126 + 243 =$
 (4)
 $210 + 489 =$
 (4)
 $130 \div 5 =$

 (4)
 $71 - 36 =$
 (4)
 $210 + 489 =$
 (4)
 $130 \div 5 =$

 (4)
 $71 - 36 =$
 (4)
 $25 \times 5 =$
 (4)
 $142 + 99 =$

 (4)
 $71 - 36 =$
 (5)
 $82 - 54 =$
 (5)
 $150 \times 6 =$

 (4)
 $350 + 280 =$
 (5)
 $82 - 54 =$
 (5)
 $150 \times 6 =$

 (5)
 $1000 \div 250 =$
 (5)
 $255 + 265 =$
 (5)
 $54 - 39 =$

 (5)
 $250 \times 8 =$
 (5)
 $201 - 36 =$
 (5)
 $49 + 94 =$

 (5)
 $840 \div 12 =$
 (5)
 $87 + 207 =$
 (6)
 $305 - 163 =$