

Name	
Form	
Teacher	

Maths

Homework Booklet

Year 8e Spring

Topic	Hand in date	Score achieved
1: Mixed Revision 1		
2: Mixed Revision 2		
3: Brackets, Equations and Inequalities		
4: Brackets, Equations and Inequalities		
5: Brackets, Equations and Inequalities		
6: Brackets, Equations and Inequalities		
7: Sequences		
8: Indices		
9: Fractions and Percentages		
10: Fractions and Percentages		
11: Fractions and Percentages		
12: Standard Index Form		
13: Standard Index Form		
14: Number Sense		

1: Mixed Revision 1

Which of these ratios are the same?



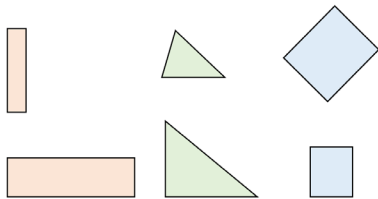
$8a : 10a$ $\frac{28}{45} : \frac{35}{45}$
 $16 : 20$ $4 : 5$
 $0.8 : 1$ $4 \times 10^3 : 5 \times 10^2$

5 scoops of ice cream costs £4.50
How much would it cost for:



- 10 scoops
- 8 scoops
- 1 scoop
- 9 scoops

These shapes are drawn to scale.
Which pairs of shapes are similar?
How can you be sure that they are similar?



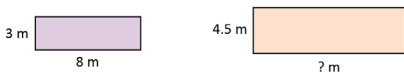
Match each statement to the bar model.
How would you model the unmatched statements?
What fractions can you see?



Red : Yellow
2 : 5
 Two fifths are red
 Yellow : Red
2 : 3
 Two sevenths are yellow

Yellow
 Red
 Red
 Yellow

The two rectangles are similar.



The height has gone up by 1.5 m, so the width of the orange rectangle is 9.5 m.

The ratio of the height of the purple to orange rectangle is 2 : 3



Do you agree with Rosie or Tommy?
Explain your answer.



Workspace

Write these ratios in the form $1 : n$

What do your answers tell you about the different ratios?

Now write the ratios in the form $n : 1$

What's the same and what's different?

$11 : 2$

$4 : 9$

$4 : 6$

$6 : 4$

$5 : 2$

$5 : 8$

$4 \text{ kg} : 200 \text{ g}$

Divide

Complete the statements using $<$, $>$ or $=$

$\frac{3}{5} \div \frac{1}{5} \bigcirc \frac{3}{5} + \frac{1}{6}$

$\frac{1}{2} \div \frac{1}{5} \bigcirc \frac{1}{4} \div \frac{1}{5}$

$\frac{1}{5} \div \frac{1}{3} \bigcirc \frac{3}{5} + \frac{1}{9}$

Work out the following divisions.

$1 \div \frac{2}{5}$

$1 \div 2\frac{2}{5}$

$2 \div 2.4$

$4\frac{3}{8} \div 2\frac{1}{7}$

$2\frac{1}{7} \div 4\frac{3}{8}$

$\frac{22}{7} \div 4.375$

Multiply

Work out the following multiplications.

$2\frac{1}{4} \times 3$

$2\frac{1}{4} \times 4$

$5 \times 2\frac{1}{4}$

$5\frac{5}{8} \times 1\frac{7}{9}$

$5\frac{5}{8} \times 1\frac{5}{9}$

$5\frac{5}{8} \times 1\frac{5}{7}$

Put the following in ascending order.

$\frac{1}{5} \times \frac{3}{8}$

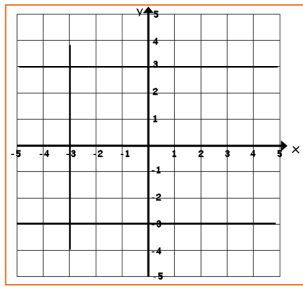
$\frac{2}{5} \times \frac{3}{8}$

$\frac{1}{15} \times \frac{9}{16}$

$\frac{2}{15} \times \frac{15}{16}$

$\left(\frac{3}{5}\right)^2$

2: Mixed Revision 2



Write down the equations of the lines shown.

Label the lines with their equations.
Draw the line $x = 4$ onto the grid.

Write down the coordinates of the points where the lines intersect.

Which of the following points will lie on the line $y = x$?
Which of the others lie above the line $y = x$, and which lie below?



(19, 19)

(-10, -9 - 1)

(8, 7)

(7, 8)

(a, a)

(0.3, 0.3)

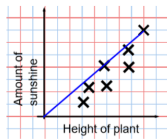
($b \times 2$, $b + b$)

(6, -6)

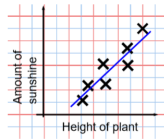
Jack and Dora are both drawing a line of best fit.
Whose method is better? Explain why.



Jack



Dora



Jack has joined the point representing the tallest plant with the origin.

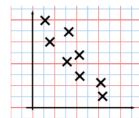
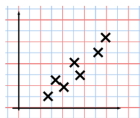
Dora has wiggled her ruler around until there are roughly the same number of points on each side of the line.

Match one description to each graph. Give two other example descriptions that could fit each graph.

Height and weight of 5 to 18 year-olds

Amount of petrol in tank and distance travelled

Average time watching TV and size of TV



Complete the sentences.

As one variable _____, the other variable also _____.

This relationship is called _____ correlation.

As one variable _____, the other variable _____.

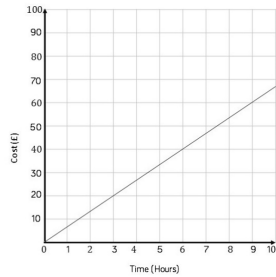
This relationship is called _____ correlation.

Workspace

This conversion graph shows the cost and time it takes to paint a room.

What is the cost of painting a room that takes 3 hours?

How long would it take to paint room costing £120?

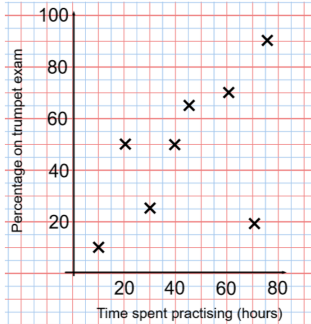


Tommy has practised playing his trumpet for 70 hours. He wants to use the graph to estimate what percentage he will get in the exam.

He looks at the graph and estimates that he will get 20%. What mistake has Tommy made?

Use a line of best fit to estimate the percentage Tommy will get in the exam.

Identify an outlier.



Workspace

A spinner is spun and a fair die is rolled at the same time. Complete the table listing all the possible outcomes.

	1	2	3	4	5	6
R	1R					
G		2G				
B						
Y						6Y



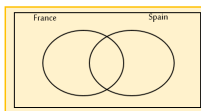
Continue completing the table for rolling two regular dice and adding the numbers together.

+	1	2	3	4	5	6
1	2	3				7
2						
3						
4						
5						
6						

- Work out,
- ▣ P(total is even)
 - ▣ P(6 or 7)
 - ▣ P(Number > 4)
 - ▣ P(0)
 - ▣ P(prime number)
 - ▣ P(square number)

These probabilities should be out of 36 as that's the total.

100 people were surveyed about countries they had visited. 30 had visited France, 25 had visited Spain and 12 had visited both France and Spain. Use a Venn diagram to show this information. One person is chosen from the survey to win a prize. Find the probability the winner had visited neither France nor Spain.



In how many different ways can you order the letters C, D, E and F?

List all the possible orders.



Dora

$4 \times 4 = 16$
There are 16 possibilities

$4 \times 3 \times 2 \times 1 = 24$
There are 24 possibilities



Amir



Year 8

Brackets, Equations & Inequalities

Name _____

Workspace

1 Match each statement with the correct expression.

6 multiplied by y

$6 - y$

6 more than y

$y - 6$

y less than 6

$y + 6$

6 less than y

$6y$

2 marks

2 Complete the identity.

$$4(x + 5) \equiv \underline{\hspace{1cm}}x + \underline{\hspace{1cm}}$$

You may use the bar model to help you.

$x + 5$	$x + 5$	$x + 5$	$x + 5$
x	5	x	5
x	x	x	5
x	x	x	5

Expand $3(2x + 7)$

1 mark

3 Expand and simplify.

$$5(2p - 3) - 2(2 + 3p)$$

2 marks

Expand $2d(d + 3)$

1 mark

4 Solve $3x - 5 = 31$

2 marks

5 Factorise $6x - 9$

1 mark

Factorise fully $6a + 10ab$

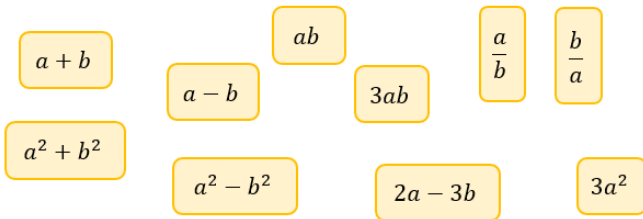
2 marks

k is a number. Write an expression for the number that is,

- Five more than k
- One third of k
- Four multiplied by k
- Seven less than k
- The difference between k and 10

Give your answers in correct algebraic notation.

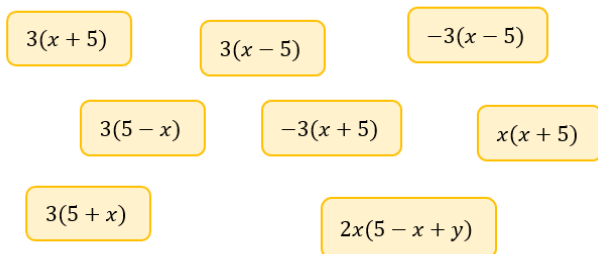
Work out the value of these expressions when $a = 2$ and $b = -4$



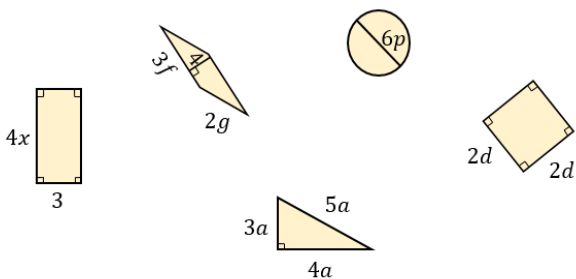
Now find the values again this time using $a = -2$ and $b = -4$

Which expressions give the same answer as before? Why?

Expand these brackets.



Write simplified expressions for the perimeter and area of each shape.



Workspace

4: Brackets Equations and & Inequalities 2

Ron has made mistakes in both these simplifications.

$$\begin{array}{l} 5 + 3(a + 6) \\ 8(a + 6) \\ 8a + 48 \end{array} \quad \times$$

$$\begin{array}{l} 5(b - 3) + 2b \\ 5b - 15 + 2b \\ 3b - 15 \end{array} \quad \times$$

Explain Ron's errors and work out the correct answers.

Expand and simplify the expressions.

$$3(5a + 2) + 4(2a + 3)$$

$$3(5a + 2) - 4(2a + 3)$$

$$3(5a + 2) + 4(2a - 3)$$

$$3(5a - 2) - 4(2a + 3)$$

$$3(5a - 2) + 4(2a - 3)$$

$$3(5a - 2) - 4(2a - 3)$$

$$3(5a - 2) - 5(3a - 2)$$

$$3(4a - 2) - 2(6a - 3)$$

Solve the equations.

$$5x + 1 = 71$$

$$5x + 1 = 7x$$

$$5x + 1 = 2x + 7$$

$$17 = 4x - 3$$

$$2x = 4x - 3$$

$$2x + 1 = 4x - 3$$

Solve the equations

$$\blacksquare 4(a + 4) = 60 \quad \blacksquare 10 = 5(b + 1)$$

$$\blacksquare 3(x + 2.7) = 4.5 \quad \blacksquare 12 = 2(x - 3)$$

$$\blacksquare 6(e - 1) + 2e = 10$$

Workspace

List the factors of the numbers or expressions on each card.

- 10 18 3x x^2 $2x^2$ 6xy

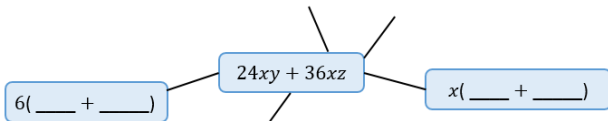
Complete the factorisations.

$$6x + 9y \equiv 3(\underline{\quad} + \underline{\quad}) \quad 4x - 6y \equiv 2(\underline{\quad} + \underline{\quad})$$

$$xy + 7x \equiv x(\underline{\quad} + \underline{\quad}) \quad a^2 + ab + 6a \equiv \underline{\quad}(a + b + 6)$$

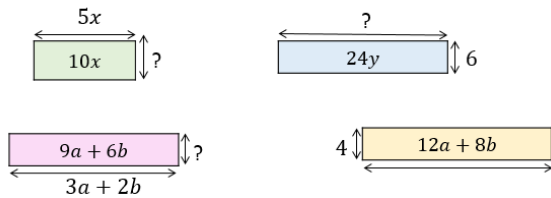
$$12pq - 15qt = \underline{\quad}(4p - 5t) \quad 20d^2 + 5d \equiv \underline{\quad}(\underline{\quad} + 1)$$

- How many ways can you find to factorise the expression?
- Fully factorise the expression.



Workspace

The area and the length of one of the sides is given for each of the rectangles. Find the missing sides.



5: Brackets Equations and & Inequalities 3

- 6 Solve the inequality.

$$21 \leq 2x + 3$$



2 marks

- 7 A ruler costs x pence.
A pen costs 10 pence more than the ruler.

Write an expression, in terms of x , for the cost of a pen.

_____ pence



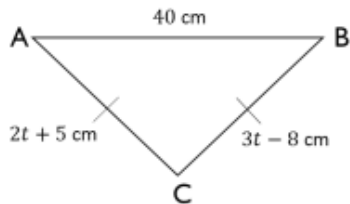
1 mark

Write an expression, in terms of x , for the total cost of 3 pens and 2 rulers.



1 mark

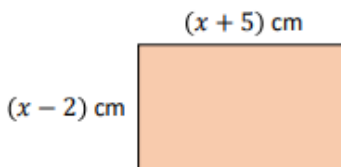
- 8 Triangle ABC is an isosceles triangle.
H Form and solve an equation to find the value of t .





2 marks

- 9 Find an expression for the area of this rectangle,
H giving your answer in the form $ax^2 + bx + c$.



_____ cm^2



2 marks

Workspace

Solve the inequalities.

$$x + 2 > 7$$

$$x - 2 > 7$$

$$x - 2 > -7$$

$$x + 2 > -7$$

$$x + 2 < -7$$

$$x - 2 \geq -7$$

$$x + 2 < 7$$

$$x - 2 \leq 7$$

$$3 + 5x \leq 7$$

$$2x + 2 < 7$$

$$4x + 2 \geq -7$$

Esther adds together three consecutive even numbers. Her total is less than 80. Use an algebraic method to work out the greatest of Esther's three numbers.

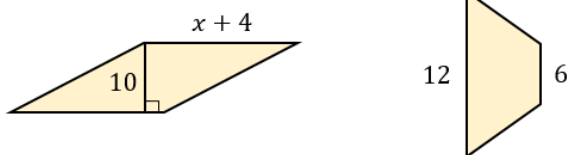
Verify, by substitution, that $x = 3$ is the solution to the equation.

$$7x + 3(2x - 4) = 4(2x + 4) - 2(3x - 8)$$

Now solve the equation algebraically.

The area of the parallelogram is twice the area of the trapezium.

Work out the total area of the two shapes.



Workspace

6: Brackets Equations and & Inequalities 4

Annie has £100
 She wants to buy three T-shirts and a jumper.
 The jumper costs £45, and she doesn't have enough money to buy everything she wants.
 What can be worked out about the price of the T-shirts?

Write an inequality and solve it to find the possible range of values for Whitney's number.

What is the smallest integer Whitney could be thinking of?



Whitney

Three more than double my number is greater than 10

Write down the equation shown by the bar model.

x	x	x	x	12
x	x	18		

Write down the new equation if the two left-most x s are removed from the bars. Work out the value of x .

x	x	x	x	12
x	x	18		

Use the bar model to help you complete the workings to find the value of y .

y	y	y	y	y
y	y	y	15	

$$5y = 3y + 15$$

$$\begin{array}{r} -3y \\ 2y = 15 \\ \text{etc.} \end{array}$$

What's the same and what's different about the cards?

$2(a + b)$

$P = 2(a + b)$

$2(a + b) \equiv 2a + 2b$

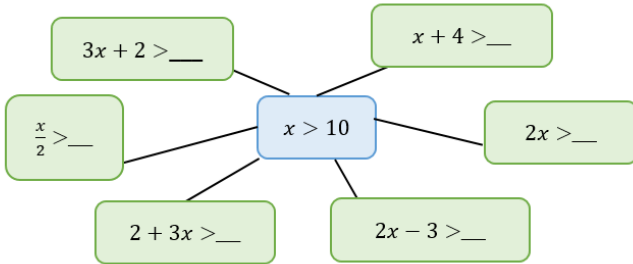
Workspace

Explain why you cannot make a triangle with three sides of lengths 4 cm, 5 cm and 12cm.

Mo says "if $x > 10$, then $x + 1 > 11$ "

Explain why Mo is right.

Complete the spider diagram.



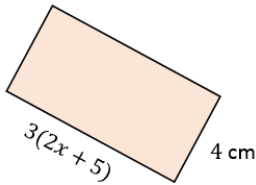
Which of the inequalities does the number 7.5 satisfy?

- $x > 7$
 $7 < x$
 $7 \leq x$
 $x < 8$
 $x \geq 8$

What's the same and what's different about the inequalities?

The area of the rectangle is 72 cm^2

Work out the value of x and hence find the perimeter of the rectangle.



An equation is anything with an equals sign.



Rosie

Explain why Rosie is wrong.

Which of these cards show equations? What do the other cards show?

$3a + 2(a + 5) = 25$

$v = u + at$

$5x + 6x \equiv 11x$

$b \times b \times b \equiv b^3$

$10 = \frac{p}{2} - 3$

$6 - m = 2$

$\frac{1}{2}(a + b)h$

$a^2 + b^2 = c^2$

$6 - m = F$

Workspace

Year 8

Sequences



Name _____

1 Work out the missing terms in each sequence.

A 16, 12, 8, 4, _____, ...

B 5, 10, 20, 40, _____, ...

C _____, 4, 7, _____, 13, ...

3 marks

Is each sequence linear or non-linear?
Tick your answers.

	Linear	Non-linear
Sequence A	<input type="checkbox"/>	<input type="checkbox"/>
Sequence B	<input type="checkbox"/>	<input type="checkbox"/>
Sequence C	<input type="checkbox"/>	<input type="checkbox"/>

1 mark

2 Write the first five terms in each sequence.

The first term is 8
Each term is 5 more than the previous one.

_____, _____, _____, _____, _____

2 marks

The first term is 8
Each term is 4 more than double the previous term.

_____, _____, _____, _____, _____

2 marks

3 A sequence is given by the rule $4n - 5$

What is the 10th term in the sequence?

1 mark

What is the 20th term in the sequence?

1 mark

Will the number 25 be a term in the sequence?
Explain why or why not.

1 mark

Workspace

- 4 Dora and Amir want to know which term in the sequence $3n + 8$ will be the first term above 30



The first term above 30 is the 10th term.

Dora



The first term above 30 is the 9th term.

Amir

Show that they are both wrong.

2 marks

- 5 Write the first three terms of the sequence $n^2 + 3$

____, _____, _____, ...

2 marks

- 6 The fifth term of each of the sequences has been calculated.
Match the 5th term of each sequence to the correct algebraic rule.

$4n^2$

30

$n(n + 3)$

40

$5 + n^2$

100

2 marks

- 7 Find rules for the n th term of each sequence.

6, 11, 16, 21, 26, ...

40, 35, 30, 25, ...

3 marks

Total marks

Workspace

Year 8

Indices

Name _____

- 1 Simplify the expressions.

$$3x^2 + 5x^2 \equiv \underline{\hspace{2cm}}$$

$$7y^3 - 2y^3 + 6y^3 \equiv \underline{\hspace{2cm}}$$

$$2d^2 + 7d^3 - 4d^3 + 2d^2 \equiv \underline{\hspace{2cm}}$$

3 marks

- 2 Write these as a single term.

$$6a \times 6b \equiv \underline{\hspace{2cm}}$$

$$3m^3 \times 5m^2 \equiv \underline{\hspace{2cm}}$$

2 marks

- 3 Complete the boxes to make each identity correct.

$$7b \times 2b \equiv \boxed{} b^2$$

$$4p \times \boxed{} p^2 \equiv 12p^{\boxed{}}$$

3 marks

- 4 Each of these identities are **incorrect**.
Write a corrected version for each one.

$$a^5 \times a^3 \equiv a^{15} \times$$

$$\frac{6^7}{6^2} \equiv 1^5 \times$$

$$\frac{w^8}{w^4} \equiv w^2 \times$$

3 marks

Workspace

5 Explain why it is not possible to simplify $3^8 \times 2^5$

1 mark

6 Match each expression to its simplified form.

$$\frac{15bc}{3b}$$

$$10c$$

$$\frac{15bc \times 2b}{3b^2}$$

$$5c^2$$

$$\frac{15bc^2 \times 2b}{6b^2}$$

$$5c$$

2 marks

7 Show that $(2y^3)^3 \equiv 8y^9$

H

2 marks

8 Fill in the boxes so that each expression is equivalent to $2b$ when simplified.

$$\frac{8b}{\square} \equiv 2b$$

$$\frac{10b^8}{\square} \equiv 2b$$

$$5(b + 6) - 3(\square) \equiv 2b$$

$$\frac{2b^2 \times \square}{4b^5} \equiv 2b$$

4 marks

Total marks

Workspace

9: Fractions and Percentages 1

Year 8

White
Rose
Maths

Fractions and Percentages

Name _____

1 Write 0.4, 140%, $\frac{4}{5}$ and 25% in the correct place on the number line.

3 marks

2 Draw lines to match the bar model to the correct percentage increase/decrease and multiplier.

102%

80%

120%

20% decrease

2% increase

20% increase

1.02

1.2

0.8

3 marks

Workspace

72% of the Earth's surface is covered by water.

Tick all answers below which represent the percentage of earth which is not covered by water.

- 0.28

$\frac{56}{200}$

0.72
- $\frac{7}{25}$

$\frac{36}{50}$

Complete the statements using $<$, $>$ or $=$

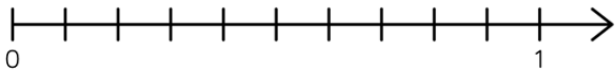
- 1) 0.37 $\frac{3}{8}$

2) 0.35 $\frac{3}{5}$

3) 0.4 4%

4) 0.6 60%

Label on the number line $\frac{4}{5}$, 0.7 and 75%



In a bag, $\frac{2}{5}$ of the counters are red.

0.15 of the counters are green.

The rest of the counters are blue.

What percentage of the counters are blue?



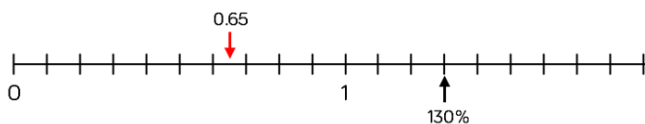
Huan thinks $\frac{1}{3} = 30\%$
Prove that Huan is wrong.

Rosie says that $\frac{1}{4}$ is equivalent to 25%
so $\frac{1}{8}$ is 12.5%

Use this information to write $\frac{3}{8}$ as a
percentage and a decimal.

Use the given information to add these
decimals and percentages to the number line.
Label each one.

0.3, 60%, 100%, 1.3, 0.15, 5%,
30%, 0.55, 0.9, 190%, 1.1



Workspace

10: Fractions and Percentages 2

3 Dexter makes 20 cookies.
He eats 6 of the cookies and takes the rest to school.
What percentage of the cookies does he take to school?

_____ % 2 marks

4 In a sale, all prices are reduced by 25%
A computer was £472 before the sale.
Tick the calculation that would find the sale price of the computer.

- 0.75×472 $0.75 \div 472$
 0.25×472 $0.25 \div 472$

1 mark

A keyboard was £28 before the sale.
Work out the total cost of the computer and the keyboard.

£ _____ 2 marks

5 There are 40 students in a class.
60% of the students are boys.
25% of the boys have brown hair.

How many boys have brown hair?

_____ boys 2 marks

6 The table shows the number of students in the school football club in 2018

	Boys	Girls
2018	40	25

In 2019, the number of boys decreased by 5%
and the number of girls increased by 20%
How many boys and how many girls were in the club in 2019?

boys _____
girls _____

3 marks

Workspace

Workspace

Match the equivalent decimals and percentages.

Write the equivalent percentage and decimal for any cards that are not paired up.

0.08 80% 18% 8% 0.80

1.8 0.8% ___ 0.8 ___

Amir sells his mobile phone for £240
He paid £480 for the mobile phone when it was new.

Has he made a profit or loss?

What percentage profit or loss has he made?

240% 480% 50%
100% 200%

Match the multiplier with the correct percentage statement.

92% decrease 1.3 2.4 40% increase 30% increase
140% increase 0.08
20% decrease 1.4 35% decrease 0.65
0.8

Aisha earns £35000 a year.
Her boss offers her a pay rise of 6% a year,
but a rival employer offers to pay her £180 more per month.
Which offer should she accept to get the most money?

11: Fractions and Percentages 3:

- 7 Rosie bought a car for £4000
3 years later, she sells it for £1400

What is the percentage loss that Rosie has made?

_____ %
2 marks

- 8 In a sale, the price of a bike is reduced by 40%
H The sale price of the bike is £192
How much did the bike cost before the sale?

£ _____
2 marks

Whitney flips a coin and gets heads 45% of the time.

She gets heads 54 times.



How many times did she flip the coin?

Ron bakes some cakes.

He pays £15 altogether for the ingredients.
He sells 10 of the cakes, but makes a loss of 20% overall.

How much did Ron charge for each cake?

Ron reviews his pricing strategy and bakes some more cakes.

He again pays £15 altogether for the ingredients.
This time he sells 23 of the cakes for 90p each.
What percentage profit did Ron make this time?

💡 Annie has some sweets.

Teddy gives her some sweets and she now has 50% more.

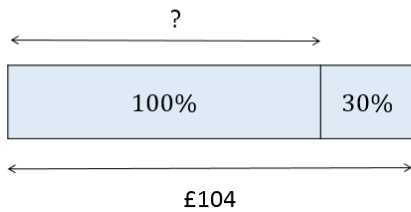


Rosie gives her some sweets and she now has an extra 40%. Annie now has 63 sweets.

How many did she have originally?

Workspace

After a 30% pay rise, Eva earns £104 a week.
How much did she earn before the pay rise?



After a 18% pay rise, Dora's salary is £38350
Which of these calculations will give her original salary?

$$\text{£}38350 \times 1.18$$

$$\text{£}38350 \div 0.82$$

$$\text{£}38350 \times 0.18$$

$$\text{£}38350 \div 1.18$$

$$\text{£}38350 \times 0.82$$

Write a question that could be solved with each of the other calculations.

Ms Rose bought a house in 2012
for £120000

She sold the house five years later making
a profit of 60%

How much did she sell the house for?

ABCD is a rectangle.

The lengths of the sides AB and BD are in the
ratio 5 : 4

What percentage of the perimeter of the
rectangle is side AC?



Workspace

12: Standard Index Form

Year 8

Standard Index Form



Name _____

1 Fill in the boxes to complete the statements.

$$10^{\square} = 10 \times 10$$

$$10^4 = 10 \times 10 \times \square$$

$$10^2 \times 10^4 = 10^{\square}$$

$$10^3 \times 10^{\square} = 10^9$$

3 marks

2 Write as ordinary numbers.

• $3 \times 10^5 =$ _____

• $2 \times 10^{-4} =$ _____

• $6.1 \times 10^{-3} =$ _____

3 marks

3 Complete the statement using $>$, $<$ or $=$

4.8×10^4



8.4×10^3

8.4×10^{-2}



8.4×10^{-3}

2 marks

4 Work out the calculations, giving your answers as ordinary numbers.

• $2 \times (8 \times 10^4)$ _____

• $(8 \times 10^4) \div 2$ _____

• $2 + 8 \times 10^4$ _____

• $(2 + 8) \times 10^4$ _____

4 marks

Workspace



$10 \times 10 \times 10 = 10^3$ and
 $10 \times 10 \times 10 \times 10 = 10^4$
 Therefore this must mean that
 $10 \times 10 \times 10 \times 10 \times 10 = 10^5$

- What connections do you see in Eva's examples?
- Use the examples to help work out what is meant by 10^7
- How can we use this understanding to work out $10^7 \times 10$?



5^3 is the same as $\frac{10^3}{2}$

Convince me that Amir is incorrect.

Fill in the blanks.

$300\ 000$ $= 3 \times 10\ 000$ $= 3 \times 10^4$	$600\ 000$ $= 6 \times \square$ $= 6 \times 10^{\square}$	$70\ 000$ $= \square$ $= \square$
---	---	---

Fill in the blanks.

$40\ 000 = 4 \times 10^4$ $\square = 4 \times 10^3$ $400 = \square$	$\square = 4.2 \times 10^2$ $425 = \square$ $\square = 4.25 \times 10^3$
---	--

Fill in the blanks.

$10^3 = \square$
 $10^2 = 100$
 $\square = 10$
 $10^0 = \square$
 $\square = \frac{1}{10^1} = \frac{1}{10} = 0.1$
 $10^{-2} = \frac{1}{10^2} = \square = 0.01$
 $10^{-3} = \frac{1}{10^3} = \frac{1}{1\ 000} = \square$



If 10^0 is 1 does that mean that any number to the power of zero is 1?

Investigate Dora's theory.
 Is she correct?

Workspace

13: Standard Index Form 2

- 5 Jack calculates $3 \times 10^2 + 2 \times 10^3 = 5 \times 10^5$

Explain Jack's mistake, and write in the correct answer in standard index form.

2 marks

- 6 Show that

$$(2 \times 10^2) \times (3 \times 10^5) = 3.5 \times 10^7 + 2.5 \times 10^7$$

2 marks

- 7 In a search engine, 40 000 searches are done every minute.
How many searches are done in an hour?
Write your answer in standard index form.

2 marks

- 8 Put these cards in ascending order.

H

8^{-2}

-8^2

$\frac{1}{8^3}$

$8^{-\frac{1}{3}}$

2 marks

Total marks

Workspace

Find and correct Alex's mistake.



$$(8 \times 10^7) \times 2 = 16 \times 10^7 \\ = 1.6 \times 10^1 \times 10^7 = 1.6 \times 10^{17}$$



Amir works out $2 \times 10^8 \div 4$ and gets the answer 0.5×10^8

He realises his answer is not in standard form and thinks of two possible solutions.

Which one is correct? Why?

$$5 \times 10^9$$



$$5 \times 10^7$$

Dora is working out $8 \times 10^4 + 9 \times 10^4$ and gets 17×10^4

She says her answer is not in standard form.

What could she do?

Use the calculator to complete the calculations on the cards where $a = 3.2 \times 10^4$ and $b = 2.1 \times 10^{-3}$

Give your answers in standard form to 3 significant figures.

$$b^3$$

$$a \div b^3$$

$$2a \div b^2$$

$$a^2 - 2b$$

$$a^2 + 2b$$

$$(a - 2b)^2$$

Mo, Alex, Rosie and Tommy are working out 2^{-3}

They all have a different answer.

Mo

Alex

Rosie

Tommy

$$-6$$

$$\frac{1}{-8}$$

$$\frac{1}{8}$$

$$\frac{1}{-6}$$

- Who is correct?
- Explain the mistakes that have been made by the others

Workspace



Year 8

Number Sense

Name _____

- 1 You may use the number lines to help you with this question.

Round 654 to the nearest 10



Round 654 to 1 significant figure



Round 76.38 to the nearest integer



Round 76.38 to 1 decimal place



4 marks

- 2 Alex has calculated 6.3×2.8 using a column method.

By rounding each number to the nearest integer, show that Alex's answer must be incorrect.

6 . 3
× 2 . 8
—
5 0 . 4
1 2 6 . 0
—
1 7 6 . 4

2 marks

- 3 Whitney buys a sandwich for £2.99, a chocolate bar for 75p and a drink for £1.15

How much does she pay altogether?

£ _____

She pays with a £5 note.

How much change does she get?

£ _____

3 marks

Workspace

- 4 Daisy's 5th birthday is on 23rd January.
Her friend's 5th birthday is on 8th February.
- How many days older is Daisy than her friend?

2 marks

- 5 Complete each statement with $>$, $<$ or $=$

300 mm 5 cm

4 kg - 250 g 3.5 kg + 150 g

2 marks

- 6 Mo has tickets for a film that starts at 16:45
He has also booked a table at a restaurant for 19:30
The film lasts 1 hour 57 minutes.
It takes 25 minutes walk from the cinema to the restaurant.
Will he make it to the restaurant in time?
Show your working.

2 marks

- 7 The value of $\sqrt{71}$ is between which two integers?

_____ $< \sqrt{71} <$ _____

2 marks

- 8 A bag of oranges weighs 1.5 kg to the nearest 100 g.
H Complete the error interval, where x is the weight of the oranges.

_____ $\leq x <$ _____

2 marks

- 9 Put these areas in size order starting with the smallest.
H

5.4 m²

45,000 cm²

5×10^6 mm²

1 mark

Total marks

Workspace