Andrell Education Ltd
Raising Standards in Education

Level 6 Platinum Challenge 1

1. What is $8 \div \frac{2}{5}$?

2. Five sixths add seven ninths

3. Explain why 36% is less than $\frac{3}{8}$

4. Convert $\frac{5}{8}$ into a percentage

5. Increase £32 by 15%

6. Write down a fraction between $\frac{1}{3}$ and $\frac{1}{2}$

7. Decrease 72m by 35%

8. A recipe for 6 people includes 750ml of orange juice. How many millilitres would be needed for 10 people?

9. There is a 30% sale . A boy paid £140 for a camera in the sale. What was the original price of the camera?

10. Divide 180 in the ratio 3:4:5

Level 6 Platinum Challenge 2

1. What is $10 \div \frac{2}{3}$?

2. Eleven twelfths take away three eighths

3. Find 35% of 48Kg

4. 13% of 48

5. Increase 56cm by 25%

6. Write down a fraction between ¼ and ⅕

7. Decrease £87 by 10%

8. A recipe for 5 people includes 450g of flour many grams would be needed for 8 people?

9. There is a 25% discount in a sale . A girl paid £30 for a pair of jeans in the sale. What was the original price of the jeans>

10. Divide £91 in the ratio 1:2:4

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Level 6 Platinum Challenge 3

1. What is 24 x ⅝?

2. Seven sixteenths add three twelfths

3. Find 13% of 45ml

4. Convert 0.55 to a percentage

5. Increase £50 by 6%

6. How would you change any fraction to an equivalent percentage?

7. Decrease 450m by 5%

8. 5 miles is approximately equal to 8km What would 3miles be approximately the same as?

9. There is a 10% discount in a sale . Mark pays £450 for a new TV in the sale. What was the original price of the TV>

10. If the ratio of boys to girls in a class is 3:1, could there be exactly 30 children in the class? Why?

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Level 6 Platinum Challenge 4

1 What is ⅔ of 8m?

2 Work out: 1⅗ + 2¾

3 27% of 63m

4 Change eight ninths into a decimal to two decimal places

5 Increase 72Kg by 35%

6 Which is closest to ⅓? 0.3 or 0.4? Explain why

7 Decrease £98 by just 1%

8 Mary pays £64 for a mobile phone in a sale that originally cost £80. What percentage discount did she get?

9 Ticket prices are increased by 10%. Ali now pays £8.80 for a ticket, what would he have paid before the increase?

10 The angles in a triangle are in the ratio 6:5:7. Find the sizes of the three angles.

Level 6 Platinum Challenge 5

1

What is $12 \div \frac{3}{5}$?

2

$\frac{5}{6}$ add $\frac{3}{5}$ take away $\frac{2}{3}$

3

Ann says that 48% of £56 is £32.48. Explain why she must be wrong.

4

Write seven twelfths as a percentage. Give your answer to one decimal place.

5

Increase 68cm by 5%

6

Starting with one tenth=0.1=10%, what other equivalences can you work out?

7

What is a quick way of decreasing any number by 5%?

8

The height of a plant has increased by 12cm from its original height of 0.8m. What is the percentage increase in height?

9

The value of Ann's car decreases by 25% when compared with what she paid for it 2 years ago. It is now worth £3600. What did she pay for the car?

10

Some money is shared between John and Ann in the ratio 3:5. John gets £24, how much does Ann receive?

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Level 6 Platinum Challenge 6

1

What is $32 \times \frac{7}{8}$?

2

Explain why $\frac{1}{3}+\frac{1}{2}$ does not equal $\frac{2}{5}$

3

Work out 98% of £40
Is there a quick way?

4

Put these in order: 64%, $\frac{2}{3}$, 0.7, $\frac{5}{8}$ starting with the smallest

5

Increase 88Kg by 55%

6

Write down a percentage between $\frac{2}{5}$ and 0.43

7

Decrease 90 by 2.5%

8

Imran scores 45 out of 60 in his maths test. The following week he scores 54 out of 60. What is the percentage increase between the two tests?

9

For one day only prices are reduced by 5%. Paul buys a digital radio for £38. What is the cost of the radio before this reduction?

10

£54 is shared between Steven and Ali so that Ali gets twice as much as Steven. How much does Ali get?

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Level 6 Platinum Challenge 7

1. What is ⅝ of 14cm?

2. Eight ninths take away five sixths

3. How could you work out 2½% of a quantity?

4. Which is closest to ⅔? 0.6 or 0.7 How do you know?

5. Increase 500ml by 0.5%

6. Write down a decimal between ⅓ and 30%

7. Decrease 800ml by 70%

8. Jenny pours out 150ml of milk from a jug leaving 80% of the original amount of milk in the jug. How much milk was originally in the jug?

9. My weight has increased from 80Kg to 84Kg. What is the percentage increase in my weight?

10. The ratio of boys to girls in a class is 2:3. What fraction of the class are boys?

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Level 6 Platinum Challenge 8

1. How many times does ¾ divide into 12?

2. What is $4\frac{1}{4} - 1\frac{2}{3}$?

3. Is 30% of 42 the same as 42% of 30? Explain your answer

4. If ⅗ of x is £90, what is 5% of x?

5. Find 105% of 420m

6. Would you prefer to have ⅗ or ½?

7. Jake says that to decrease any number by 20% you just multiply by 0.8. Is he right? Explain your answer.

8. I cut 70cm off a length of ribbon so that the ribbon is now 65% of its original length. What was the original length of the ribbon?

9. Jane buys a laptop computer for £400 and then sells in two years later for £240. What is her percentage loss?

10. Divide £4200 in the ratio 1:2:3

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Level 6 Platinum Challenge 9

1. What is ⅗ of 19Kg?

2. Explain why equivalent fractions are important when adding and subtracting fractions

3. Explain how to find a percentage of any number. Which are easy? Which are harder?

4. If ⅝ of y is £25, what is ½ of y?

5. What is 200% of 78ml?

6. What fraction lies half-way between 0.4 and 48%?

7. Decrease 43Kg by ¼

8. The number of pupils in my school has increased over the last 3 years from 600 to 630 What is the percentage increase in pupil numbers?

9. A bookshop offers a 15% discount if you buy more than two books. Tim buys 4 books and makes a saving of £3. How much would the books have cost Tim without this discount?

10. Potting compost is made from loam, peat and sand in the ratio 7:3:2. A gardener used 1.5 litres of peat to make compost. How much loam did she use?

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Level 6 Platinum Challenge 10

1. In a survey of 40 pupils, $\frac{3}{8}$ like basketball, $\frac{2}{5}$ like football and the rest like swimming. How many liked swimming?

2. Take $4\frac{2}{3}$ from $5\frac{1}{2}$

3. John says that if you increase something by 10% and then by another 10% it is the same as increasing it by 20%. Is he correct? Explain your thinking.

4. If $\frac{7}{8}$ of n is 63, what is $\frac{3}{4}$ of n?

5. Increase 75 by 1%

6. What fraction lies half-way between $\frac{3}{8}$ and 0.75?

7. If I increase n by 30% I get 52. What is n?

8. A shopkeeper reduces his prices by 10%. A week later he increases them by 10%. Are the prices now back to their original price? Explain your thinking.

9. Cheryl sells her old bicycle for £45 making a loss of 70% on what she originally paid for it. What was the original cost of the bicycle?

10. A sum of money is shared between Sue and David so that Sue gets 50% more than David. What is the ratio of David's share to Sue's share?

APP Level 6 Criteria for challenge

Assessment Criteria	Question Numbers
Use the equivalence of fractions, decimals and percentages to compare proportions	4,6
Calculate percentages and find the outcome of a given percentage increase or decrease	3,5,7
Divide a quantity into two or more parts in a given ratio and solve problems involving ratio and direct proportion	10
Use proportional reasoning to solve a problem, choosing the correct numbers to take as 100%, or as a whole	8,9
Add and subtract fractions by writing them with a common denominator, calculate fractions of quantities (fraction answers), multiply and divide an integer by a fraction	1,2

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Level 6 Platinum Challenge 1 (Answers)

1

20

2

One and eleven eighteenths

3

36%=0.36 and
⅜=0.375
Alternatively
⅜=37½%

4

⅝ =
62½%

5

£36.80

6

⅓ = Four twelfths and ½ = Six twelfths
Five twelfths

7

46.8m

8

1250ml

9

£200

10

45, 60 and 75

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Level 6 Platinum Challenge 2 (Answers)

1. 15

2. Thirteen twenty-fourths

3. 16.8Kg

4. 6.24

5. 70cm

6. ¼ = Ten fortieths and ⅛ = Eight fortieths
   Nine fortieths

7. £78.30

8. 720g

9. £40

10. 13, 26 and 52

Level 6 Platinum Challenge 3 (Answers)

1. 15

2. Thirty three forty eigths

3. 5.85ml

4. 55%

5. £53

6. Multiply the fraction by 100 to change it to a percentage

7. 427.5m

8. 4.8Km

9. £500

10. No.
4 parts and 30 is not a multiple of 4

Level 6 Platinum Challenge 4 (Answers)

1

5⅓m

2

Four and seven twentieths

3

17.01m

4

0.89

5

97.2Kg

6

⅓ = 0.3333 …
So ⅓ is closer to 0.3
(0.35 is half-way between 0.3 and 0.4)

7

£97.02

8

20%

9

£8

10

60°, 50° and 70°

Level 6 Platinum Challenge 5 (Answers)

1

20

2

Twenty three thirtieths

3

50% of £56 is £28 so 48% must be less than £28
Correct answer is £26.88

4

53.3%

5

71.4cm

6

Examples:
0.2=20%,
0.3=30%,
0.4 = 40%, etc

0.05 = 5%

7

Multiplying by 0.95

8

15%

9

£4800

10

5x£8 =
£40

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Level 6 Platinum Challenge 6 (Answers)

1

28

2

⅓ = two sixths and ½ = three sixths
So answer is ⅚

3

1% of £40 = 40p
2% of £40 = 80p
So 98% of £40 is £40 – 80p = £39.20

4

⅝, 64%, ⅔, 0.7

5

136.4Kg

6

⅖ =40%
0.43 = 43%, so
41% or 42%

7

87.75

8

45 out of 60 is 75% and 54 out of 60 is 90%
15% increase

9

£40

10

£36

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Level 6 Platinum Challenge 7 (Answers)

1

8.75cm

2

One eighteenth

3

First find 10%, then halve it to get 5% and then halve it again. Or x0.025

4

⅔ = 0.6666….
So 0.7 is closer
0.65 is half way between 0.6 and 0.7

5

502.5ml

6

⅓ = 0.33333..
30% = 0.3
So 0.31, 0.32, 0.33
(there are other answers!)

7

240ml

8

20% is 150ml
So 100% is 750ml

9

5%

10

2/5

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Level 6 Platinum Challenge 8 (Answers)

1

16

2

Two and seven twelfths

3

Yes

30% of 42 = 0.3x42
which is the same as
0.42x30 or 42% of 30
Answer= 12.6

4

⅗=60% so
60% of x = £90
10% of x = £15
5% of x = £7.50

5

441m

6

½ is bigger than ⅖ but the answer is depends on the quantities
Example: ⅗ of £500 is more than ½ of £20

7

Yes

Decreasing by 20% leaves 80% and 80% = 0.8

8

35% is 70cm
1% is 2cm
So 100% is 2m

9

40%

10

£700, £1400 and £2100

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Level 6 Platinum Challenge 9 (Answers)

1

11.4Kg

2

Fractions can only be added and subtracted when the denominators are the same. Equivalent fractions help to change fractions to the same denominator

3

Easy one are 10% and 5% and multiples of these. Alternative change into a decimal and then multiply, e.g. 17%=0.17, so x0.17

4

⅚ of y = £25 so
⅙ of y = £5
Now ½ is the same as three sixths, so
½ of y = £15

5

156ml

6

0.44 is half-way between 0.4 and 48%
And 0.44 is eleven twenty-fifths

7

32.25Kg

8

5%

9

15% = £3
So 5% = £1
50% = £10

100% = £20

10

3 parts = 1.5L, so 1 part = 0.5L
Peat is 7x0.5L
= 3.5L

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Level 6 Platinum Challenge 10 (Answers)

1

15 like basketball and 16 like football.

So 9 liked swimming

2

5/6

3

No!

Example

Start price = £20

20x1.1=£22 and

22x1.1=£24.20

But

20x1.20=£24

4

⅛ of n = 63 so

⅛ of n = 9

Now ¾ is the same as six eighths, so

¾ of n = 54

5

75.75

6

Nine sixteenths

7

1.3xn=52

So n=52÷1.3

n=40

8

No!

Example:

Start price £50

50x0.9= £45

And

45x1.1=£49.50

9

30% = £45

So 10% = £15

So100% = £150

10

Example

Sue : David = £15 : £10 which simplifies to

3 : 2