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 $\frac{1}{4}$ and $\frac{1}{5}$

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

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?

Level 6 Platinum Challenge 4

1. What is ⅔ of 8m?

2. Work out: $1\frac{3}{5} + 2\frac{3}{4}$

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.

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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?

Level 6 Platinum Challenge 6

1 What is 32 x ⅞?

2 Explain why ⅓+½ does not equal ⅖

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

4 Put these in order: 64%, ⅔, 0.7, ⅝ starting with the smallest

5 Increase 88Kg by 55%

6 Write down a percentage between ⅖ 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?

Level 6 Platinum Challenge 8

1. How many times does ¾ divide into 12?

2. What is 4¼−1⅔?

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 ⅖ 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 ⅚ 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?

Level 6 Platinum Challenge 10

1. In a survey of 40 pupils, ⅜ like basketball, ⅖ like football and the rest like swimming. How many liked swimming?

2. Take 4⅔ from 5½

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 ⅞ of n is 63, what is ¾ of n?

5. Increase 75 by 1%

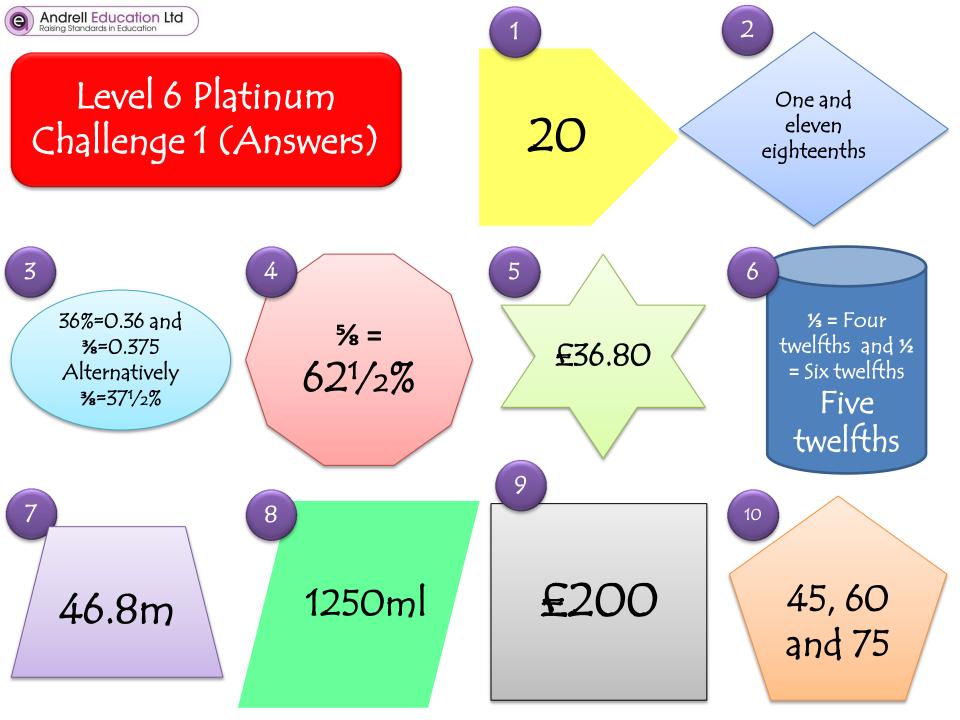**6.** What fraction lies half-way between ⅜ and 0.75?

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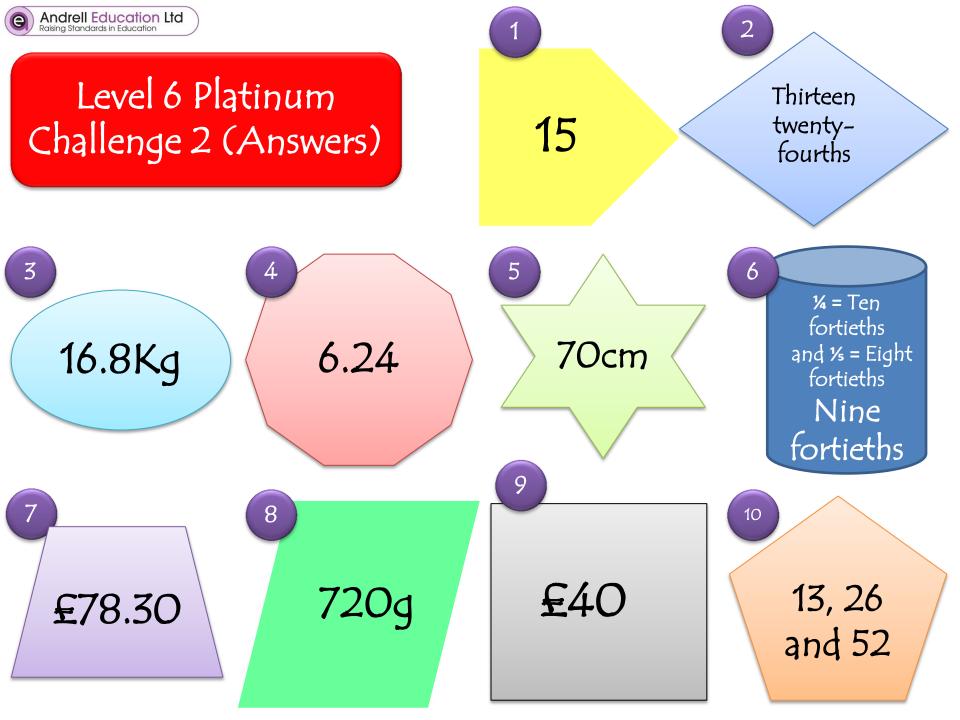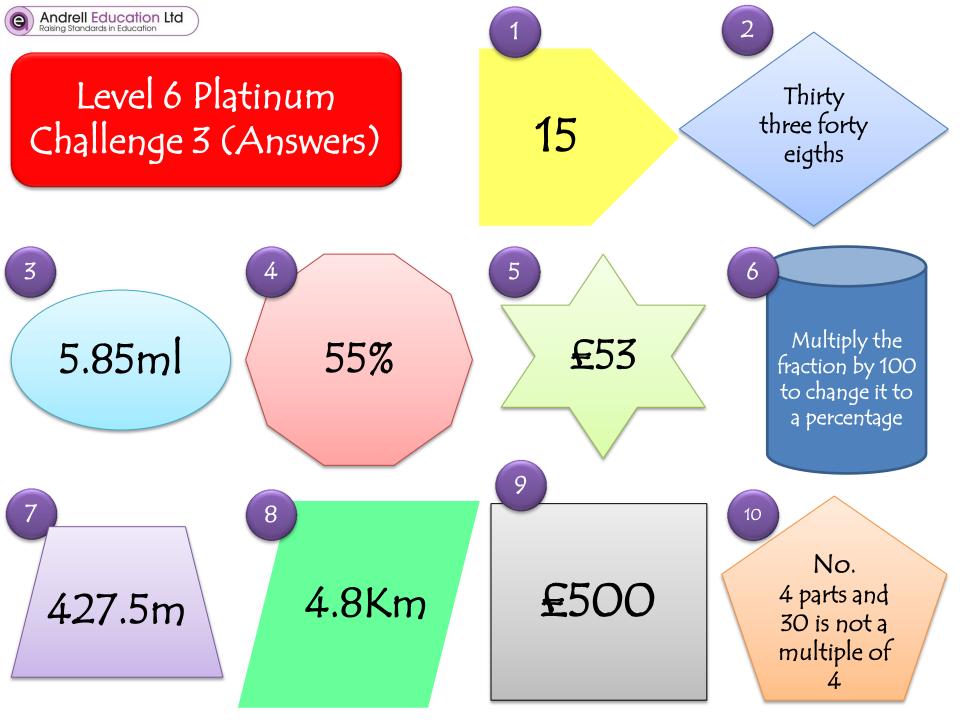
9. Cheryl sells her old bicycle for £45 making a loss of 70% on what she originally paid for it. What was the original cost of the bicycle?

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

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 = $62\frac{1}{2}\%$

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

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 ⅕ = Eight fortieths Nine fortieths

7. £78.30

8. 720g

9. £40

10. 13, 26 and 52

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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°

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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

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. ⅖

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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: ⅖ 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

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

Level 6 Platinum Challenge 10 (Answers)

1 15 like basketball and 16 like football.
So **9** liked swimming

2 $\frac{5}{6}$

3 No!
Example
Start price = £20
20x1.1=£22 and
22x1.1=£24.20
But
20x1.20=£24

4 ⅞ 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