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The zip folder that you've just opened contains a PDF file with **interactive features**.

In a move towards offering an even more versatile spread of resources, some of our worksheets feature <u>interactive fields</u> that can be filled in on computers and smart devices, without having to print the page. Follow the guidance in the next column for a smooth, stress-free means of accessing this content using free-to-download PDF reading software.
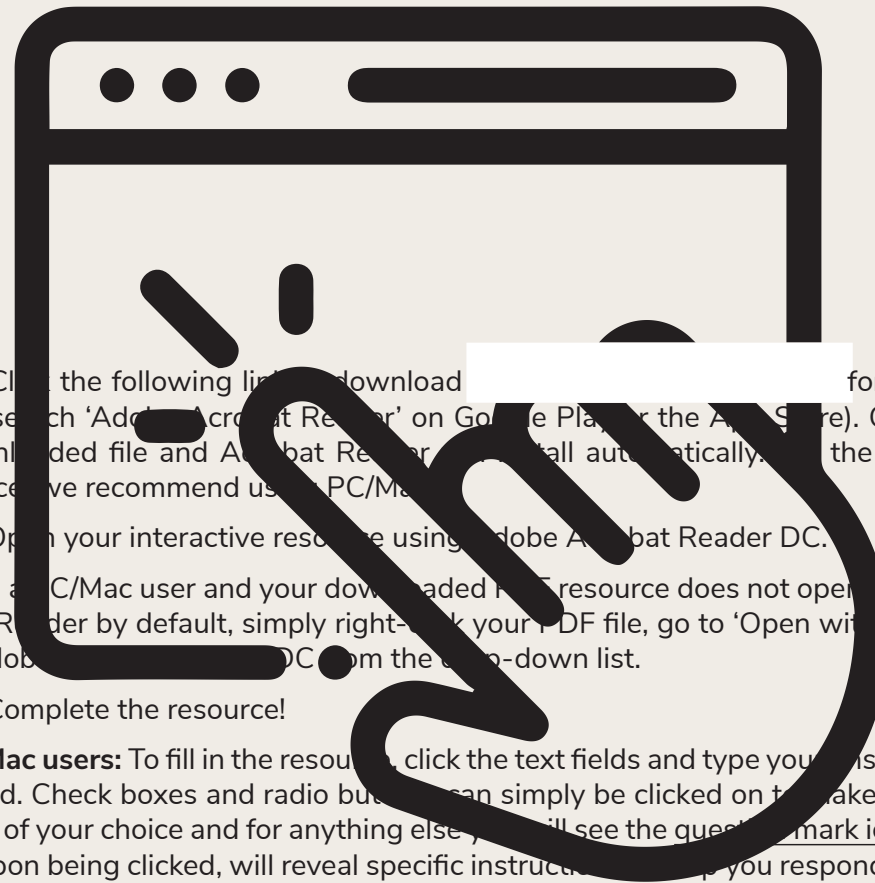
Step 1: Click the following link to download [   ] for PC/Mac (or search 'Adobe Acrobat Reader' on Google Play or the App Store). Open the downloaded file and Acrobat Reader will install automatically. For the best experience, we recommend using a PC/Mac.

Step 2: Open your interactive resource using Adobe Acrobat Reader DC.

If you are a PC/Mac user and your downloaded PDF resource does not open using Acrobat Reader by default, simply right-click your PDF file, go to 'Open with' and select Adobe [   ] DC from the drop-down list.

Step 3: Complete the resource!

For PC/Mac users: To fill in the resource, click the text fields and type your answers as needed. Check boxes and radio buttons can simply be clicked on to make the selection of your choice and for anything else you will see the question mark icon which, upon being clicked, will reveal specific instructions to help you respond to the corresponding question or activity. When you are finished with the resource, go to File > Save As... and save your file in a memorable location.

For smart device users: To fill in the resource, follow the same process as described above. When you are finished, simply press the back button in the top left of the appscreen and your PDF will save automatically.

Remember: Saving your PDF will overwrite the original file, so be sure to create a copy before starting if you wish to keep a blank copy of the resource on your device.

We hope you have found this information useful. If you experience any problems in following the instructions above, please contact the Beyond team at [   ] and we will do our best to help with your query.

Your Turn

1. Write down the percentage multipliers for:

   a. a 13% increase

   100 + 13 = 113%

   113 ÷ 100 = 1.13

   b. a 19% decrease

   100 – 19 = 81%

   81 ÷ 100 = 0.81

   c. a 47% increase

   100 + 47 = 147%

   147 ÷ 100 = 1.47

   d. an 80% decrease

   100 – 80 = 20%

   20 ÷ 100 = 0.2

2. The table shows the sale price of items reduced in a sale. Work out the original price of each item.

Sale Price	Percentage Reduction	Original Price
£68	15%	**68 ÷ 0.85 = £80**
£81	10%	**81 ÷ 0.9 = £90**
£89.60	20%	**89.6 ÷ 0.8 = £112**
£37	26%	**37 ÷ 0.74 = £50**

3. In July, a holiday park increased its prices by 40%. The table shows the new prices of some holidays. Work out the original prices.

Type of Holiday	New Price	Old Price
4 nights	£1680	**1680 ÷ 1.4 = £1200**
7 nights	£2590	**2590 ÷ 1.4 = £1850**
Luxury lodge 4 nights	£2856	**2856 ÷ 1.4 = £2040**

Challenge

Complete these problems without using a calculator.

a. 30% of a number is 60. What is the number?

   30% = 60

   10% = 60 ÷ 3 = 20

   100% = 20 × 10 = 200

b. 35% of a number is 14. What is the number?

   35% = 14

   5% = 14 ÷ 7 = 2

   100% = 2 × 20 = 40

Original Value Problems (Percentages)

Calculator Allowed

Prior Knowledge:

Before attempting this sheet, students must be able to calculate a percentage increase or decrease, using a multiplier.

We can use multipliers to help us find the original amount after a percentage increase or decrease.

Example 1:

A number is increased by 12%. The new number is 44.8. What was the original number?

To increase by 12%, begin by adding 12% to 100%.

100 + 12 = 112%

The percentage multiplier is 112 ÷ 100 = 1.12

To find the original number, we divide 44.8 by 1.12.

44.8 ÷ 1.12 = 40

Example 2:

A number is decreased by 35%. The new number is 39. What was the original number?

To decrease by 35%, begin by subtracting 35% from 100%.

100 – 35= 65%

The percentage multiplier is 65 ÷ 100 = 0.65

To find the original number, we divide 39 by 0.65.

39 ÷ 0.65 = 60

Your Turn

1. Write down the percentage multipliers for:

   a. a 13% increase

   [ ]

   c. a 47% increase

   [ ]

   b. a 19% decrease

   [ ]

   d. an 80% decrease

   [ ]

2. The table shows the sale price of items reduced in a sale. Work out the original price of each item.

Sale Price	Percentage Reduction	Original Price
£68	15%	
£81	10%	
£89.60	20%	
£37	26%	

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7 nights	£2590	
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Challenge

Complete these problems without using a calculator.

a. 30% of a number is 60. What is the number?

[ ]

b. 35% of a number is 14. What is the number?

[ ]

Original Value Problems (Percentages)

Calculator Allowed

We can use multipliers to help us find the original amount after a percentage increase or decrease.

Example 1:

A number is increased by 12%. The new number is 44.8. What was the original number?

To increase by 12%, begin by adding 12% to 100%.

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The percentage multiplier is 112 ÷ 100 = 1.12

To find the original number, we divide 44.8 by 1.12.

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Example 2:

A number is decreased by 35%. The new number is 39. What was the original number?

To decrease by 35%, begin by subtracting 35% from 100%.

100 – 35= 65%

The percentage multiplier is 65 ÷ 100 = 0.65

To find the original number, we divide 39 by 0.65.

39 ÷ 0.65 = 60

Your Turn

1. Write down the percentage multipliers for:

    a. a 13% increase

    _____

    _____

    b. a 19% decrease

    _____

    _____

    c. a 47% increase

    _____

    _____

    d. an 80% decrease

    _____

    _____

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Complete these problems without using a calculator.

a. 30% of a number is 60. What is the number?

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b. 35% of a number is 14. What is the number?

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