

## Exam Revision – Number

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## Integers

Check out this page for more information on integers <http://www.mathsisfun.com/positive-negative-integers.html>

$1) 8 \times 3 =$

$3) -5 - -6 =$

$5) 9 - 7 =$

$7) 6 + -6 =$

$9) 2 \times 4 =$

$11) -8 \div 4 =$

$13) 3 \times -3 =$

$15) 7 - 6 =$

$17) 6 - -8 =$

$19) -4 + 8 =$

$21) 4 + 6 =$

$23) 3 + 7 =$

$25) -14 \div 7 =$

$27) 3 - 6 =$

$29) 9 + -6 =$

$2) 3 \times -4 =$

$4) 12 \div 3 =$

$6) 6 \times 7 =$

$8) 48 \div 6 =$

$10) -4 + -8 =$

$12) 63 \div 7 =$

$14) 3 \times 3 =$

$16) -3 - -2 =$

$18) 16 \div 2 =$

$20) 6 - 9 =$

$22) 3 - 8 =$

$24) -3 \times -9 =$

$26) -35 \div 5 =$

$28) 8 + 5 =$

$30) -7 + 9 =$

## Order of Operations (BEDMAS)

$1) 7 \times 6 \times (10 - 4)$

$2) (12 - 2) + 16 \div 8$

$3) (11 + 16 - 3) \div 6$

$4) (15 + 21) \div (-2 + 5)$

$5) (11 + 5) + 8 \div 4$

$6) 3 \times 11 \times (8 - 6)$

$7) (13 + 37) \div (7 - 5)$

$8) (11 + 32 - 3) \div 5$

$9) (12 + 5) \times 8 - 4$

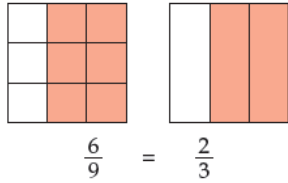
$10) (21 + 3) \times 10 - 5$

## Simplifying Fractions

### Example

The fraction  $\frac{6}{9}$  can be simplified to  $\frac{2}{3}$ .

Look at the two diagrams below. The *same* proportion of the square is shaded, but 'two-thirds' is the *simplest* way of expressing (saying) this.



Here is how we *simplify* a fraction. We write it as an **equivalent fraction** using **smaller** numbers than in the original fraction.

### Example: Simplify the fraction $\frac{8}{12}$ :

The largest number that goes exactly into both 8 and 12 is 4, so *the Greatest Common Factor is 4*.

Divide both top and bottom by 4:

$$\begin{array}{ccc} & \div 4 & \\ & \curvearrowright & \\ \frac{8}{12} & = & \frac{2}{3} \\ & \curvearrowleft & \\ & \div 4 & \end{array}$$

That is as far as we can go. The fraction simplifies to  $\frac{2}{3}$

For more information <http://www.mathsisfun.com/simplifying-fractions.html>

Simplify the following fractions

1)  $\frac{60}{90} =$

2)  $\frac{8}{12} =$

3)  $\frac{2}{4} =$

4)  $\frac{25}{35} =$

5)  $\frac{36}{63} =$

6)  $\frac{54}{63} =$

7)  $\frac{6}{18} =$

8)  $\frac{8}{16} =$

9)  $\frac{15}{25} =$

10)  $\frac{35}{60} =$

11)  $\frac{12}{24} =$

12)  $\frac{16}{32} =$

13)  $\frac{12}{20} =$

14)  $\frac{10}{20} =$

15)  $\frac{8}{16} =$

## Adding Fractions

There are 3 Simple Steps to add fractions:

- Step 1: Make sure the bottom numbers (the **denominators**) are the same
- Step 2: Add the top numbers (the **numerators**), put the answer over the denominator
- Step 3: Simplify the fraction (if needed)

When the denominators are different we have to make them the same e.g.

$$\frac{1}{2} + \frac{2}{3} = \frac{3}{6} + \frac{4}{6} = \frac{3+4}{6} = \frac{7}{6} = 1\frac{1}{6}$$

First we make sure the denominators are the same by using equivalent fractions, then we add and simplify.

Checkout [http://www.mathsisfun.com/fractions\\_addition.html](http://www.mathsisfun.com/fractions_addition.html) for more information and practice

1)  $\frac{1}{4} + \frac{2}{4} =$

2)  $\frac{4}{12} + \frac{5}{12} =$

3)  $\frac{4}{9} + \frac{4}{9} =$

4)  $\frac{1}{8} + \frac{5}{8} =$

5)  $\frac{4}{11} + \frac{4}{11} =$

6)  $\frac{1}{12} + \frac{3}{12} =$

7)  $\frac{3}{12} + \frac{5}{12} =$

8)  $\frac{1}{7} + \frac{2}{7} =$

9)  $\frac{4}{11} + \frac{6}{11} =$

10)  $\frac{1}{10} + \frac{3}{10} =$

11)  $\frac{1}{2} + \frac{2}{3} =$

12)  $\frac{3}{5} + \frac{1}{2} =$

13)  $\frac{4}{5} + \frac{7}{10} =$

14)  $\frac{7}{10} + \frac{1}{4} =$

15)  $\frac{1}{3} + \frac{2}{5} =$

16)  $\frac{1}{3} + \frac{5}{10} =$

17)  $\frac{2}{3} + \frac{1}{2} =$

18)  $\frac{4}{5} + \frac{2}{4} =$

19)  $\frac{2}{4} + \frac{3}{5} =$

20)  $\frac{1}{2} + \frac{3}{5} =$

## Multiplying Fractions

Example:

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

**Step 1.** Multiply the top numbers:

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

**Step 2.** Multiply the bottom numbers:

$$\frac{1}{2} \times \frac{2}{5} = \frac{1 \times 2}{2 \times 5} = \frac{2}{10}$$

**Step 3.** Simplify the fraction :

$$\frac{2}{10} = \frac{1}{5}$$

For more information [http://www.mathsisfun.com/fractions\\_multiplication.html](http://www.mathsisfun.com/fractions_multiplication.html)

Multiply these fractions and simplify if possible

1)  $\frac{2}{10} \times \frac{1}{7} =$

2)  $\frac{1}{2} \times \frac{4}{7} =$

3)  $\frac{4}{6} \times \frac{2}{3} =$

4)  $\frac{5}{10} \times \frac{1}{2} =$

5)  $\frac{5}{8} \times \frac{4}{7} =$

6)  $\frac{1}{3} \times \frac{8}{9} =$

7)  $\frac{4}{8} \times \frac{5}{9} =$

8)  $\frac{1}{2} \times \frac{3}{8} =$

9)  $\frac{1}{2} \times \frac{1}{6} =$

10)  $\frac{2}{3} \times \frac{4}{5} =$

11)  $\frac{7}{8} \times \frac{7}{10} =$

12)  $\frac{1}{2} \times \frac{3}{4} =$

13)  $\frac{1}{2} \times \frac{3}{5} =$

14)  $\frac{8}{9} \times \frac{3}{5} =$

## Dividing Fractions

Turn the second fraction upside down, then multiply.

Example:

$$\frac{1}{2} \div \frac{1}{6} = \frac{1}{2} \times \frac{6}{1} = \frac{1 \times 6}{2 \times 1} = \frac{6}{2} = 3$$

For more information see [http://www.mathsisfun.com/fractions\\_division.html](http://www.mathsisfun.com/fractions_division.html)

$$1. \frac{2}{7} \div \frac{2}{3} = \frac{2}{7} \times \frac{3}{2} = \frac{6}{14} = \frac{3}{7}$$

$$2. \frac{6}{10} \div \frac{3}{5} =$$

$$3. \frac{2}{5} \div \frac{5}{7} =$$

$$4. \frac{4}{9} \div \frac{1}{2} =$$

$$5. \frac{2}{3} \div \frac{1}{2} =$$

$$6. \frac{1}{8} \div \frac{6}{10} =$$

$$7. \frac{9}{10} \div \frac{6}{8} =$$

$$8. \frac{1}{5} \div \frac{3}{4} =$$

$$9. \frac{2}{5} \div \frac{6}{7} =$$

$$10. \frac{3}{8} \div \frac{4}{5} =$$

$$11. \frac{9}{10} \div \frac{4}{6} =$$

$$12. \frac{7}{10} \div \frac{3}{6} =$$

$$13. \frac{2}{7} \div \frac{2}{10} =$$

$$14. \frac{3}{4} \div \frac{1}{2} =$$

$$15. \frac{1}{7} \div \frac{4}{9} =$$

## Percentages

### Finding a Percentage of a Quantity

Find 20% of 130

Step 1: Turn the percentage into a decimal

$$\frac{20}{100} = 20 \div 100 = 0.20$$

Step 2: Multiply the decimal and the total

$$0.20 \times 130 = 26$$

$$\text{Calculator: } 20 \div 100 \times 130 = 26$$

1) 28% of 50 =

2) 20% of 400 =

3) 4% of 150 =

4) 15% of 300 =

5) 16% of \$240 =

6) 92% of \$18 =

7) 52% of \$63 =

8) 88% of \$140 =

9) 29% of 56kg =

10) 53% of 500kg =

11) 37% of 7kg =

12) 8% of 3kg =

13) 12% of 170cm =

14) 27% of 37m =

15) 44% of 78m =

16) 32% of 230cm =

### Percentage Increase and Decrease of a Quantity

- Find the percentage of the amount and either add it on (increase) or subtract it (decrease)
- If you have a quicker way of doing this – feel free to use it.

e.g. Increase \$48 by 10%

Find 10% of \$48

Add it to \$48

### Increase

- 1) 30 by 20% =
- 2) 70 by 40% =
- 3) 300 by 48% =
- 4) 200 by 4% =
- 5) \$260 by 15% =
- 6) \$16 by 30% =
- 7) \$87 by 17% =
- 8) \$72 by 39% =
- 9) 58kg by 24% =
- 10) 580kg by 6% =
- 11) 7kg by 92% =
- 12) 14kg by 78% =
- 13) 2m by 35% =
- 14) 57m by 74% =
- 15) 170cm by 6% =
- 16) 1800m by 1% =

### Decrease

- 1) 60 by 20% =
- 2) 90 by 20% =
- 3) 500 by 48% =
- 4) 800 by 4% =
- 5) \$290 by 45% =
- 6) \$18 by 30% =
- 7) \$29 by 17% =
- 8) \$42 by 39% =
- 9) 54kg by 24% =
- 10) 380kg by 6% =
- 11) 9kg by 92% =
- 12) 3kg by 53% =
- 13) 1m by 35% =
- 14) 97m by 94% =
- 15) 190cm by 8% =
- 16) 1300m by 1% =

### One quantity as a percentage of another

Here's how to write one quantity as a percentage of another. Write it as a fraction first, and then change it into a percentage.

#### Example

In a Maths test, Lee got 42 questions correct out of 70. The teacher wrote  $\frac{42}{70}$  on the front page. Write this mark as a percentage.

#### Answer

$$\frac{42}{70} \times \frac{100}{1} = 60\%$$

- 1) 15 as a percentage of 60
- 2) 200 as a percentage of 2000
- 3) 6 as a percentage of 150
- 4) 45 as a percentage of 60



- |                                |                                |
|--------------------------------|--------------------------------|
| 5) 80 as a percentage of 320   | 11) 224 as a percentage of 400 |
| 6) 48 as a percentage of 192   | 12) 36 as a percentage of 288  |
| 7) 183 as a percentage of 600  | 13) 54 as a percentage of 144  |
| 8) 170 as a percentage of 400  | 14) 33 as a percentage of 264  |
| 9) 21 as a percentage of 40    | 15) 50 as a percentage of 225  |
| 10) 120 as a percentage of 600 | 16) 72 as a percentage of 92   |

### Word Questions

1. An iPod cost \$279. In a sale it is reduced by 25%. What is the sale price?
2. \$550 is put in a bank. After a year the money has increased by 4%. How much is now in the bank?
3. The bill for a meal came to \$65.40 plus 15% GST. What was the total bill?
4. The number of pupils in a school rises by 8%. There used to be 850 pupils, how many are there now?
5. A town had a population of 26 200. The total fell by 7%. What is the new population?
6. Rima throws the javelin 52 metres. His next throw is 12% better. How far is the second throw?
7. A boy gets 29 marks out of 50 in his maths exam. What percentage did he score?
8. In a school of 400 students, 250 are girls. What percentage are girls?

## Fractions

1. Andy earns \$96.27 a week. After deductions he takes home  $\frac{2}{3}$  of the wage. How much does he take home?
2. At school  $\frac{7}{10}$  of the pupils have a snack at break time. There are 780 pupils. How many do not have a snack at break time?
3. A magazine contains  $\frac{7}{12}$  articles and the rest are adverts. If there are 204 pages in the magazine how many pages are adverts?
4. Jenny has 9kg of flour. She drops  $\frac{1}{4}$  of it. What weight of flour has she dropped?
5. Beth has a rope 23m long. She cuts off  $\frac{1}{5}$  of it. How long are the two pieces?

## Ratios

### Sharing Fairly using Ratios

Share \$500 between Cooper and Luca in the ratio 10 : 6

Altogether there are  $10 + 6 = 16$  parts

Cooper should get  $\frac{10}{16} \times \$500 = \$312.50$

Luca should get  $\frac{6}{16} \times \$500 = \$187.50$

Check:  $312.50 + 187.50 = \$500$  ✓

1. A school collected \$272 for charity. It was decided to divide the money between Indian Wells and CanTeen in the ratio 3 : 5. How much did each charity receive?
2. Pocket money is split between Andrew, Sam and Moana in the ratio 2 : 3 : 4. Dad pays out \$36 per week. How much does each child get?
3. \$54 is split between Sanjay, Miriama and Pete in the ratio 3 : 4 : 5. How much does each one receive?
4. To make pastry you need fat to flour in the ratio 1 : 3. Jane has 180g of flour. How much fat does she need to make the pastry?
5. Money is split between Hemi, Piripi and Rima in the ratio 2 : 5 : 9. Piripi gets \$35. How much do the others get?

