# Weekly check: Year 7 part 2

Worked solutions

**KS3 Maths weekly check**

This check online

**1** Make $x$ the subject of the formula

$y = 2x + 9$

(2 marks)

$y = 2x + 9$

$-9$: $y - 9 = 2x$

$\div 2$: $\frac{y - 9}{2} = x$

$$x = \frac{y - 9}{2}$$

**2** Ben's rent is £240 each week.

His rent is increased by 35%.

Work out Ben's new weekly rent.

(3 marks)

10% of £240 = £24

30% of £240 = 3 x 24

30% of £240 = £72

5% of £240 = £12

35% of £240 = 72 + 12

35% of £240 = £84

New rent = 240 + 84

New rent = £324

£324


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**3** Write down the ratio 45 cm : 1.5 m in its simplest form. (2 marks)

Same units first

1.5 m = 150 cm

45 : 150

HCF of 45 and 150 = 15

Divide both parts by 15

3 : 10

**3 : 10**

**4** The $n$th term of a sequence is $20 - 4n$

a. Write down the first four terms of the sequence.

b. Work out the 10th term of the sequence. (2 marks)

a)

$n = 1$: $20 - 4 \times 1 = 16$

$n = 2$: $20 - 4 \times 2 = 12$

$n = 3$: $20 - 4 \times 3 = 8$

$n = 4$: $20 - 4 \times 4 = 4$

**16, 12, 8, 4**

b)

$20 - 4 \times 10 = 20 - 40 = -20$

**-20**

**5** Oliver expands $4(3m - 2)$ and writes

$4(3m - 2) = 12m - 2$

Explain the mistake Oliver has made and write the correct answer. (2 marks)

The 4 multiplies BOTH terms

$4 \times 3m = 12m$

$4 \times 2 = 8$ (Oliver forgot this)

**$12m - 8$**


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**6** A bottle contains 850 ml of juice.

34% of the juice is orange juice.

Work out how many millilitres of orange juice are in the bottle. (2 marks)

34% = 0.34

Orange juice = 0.34 × 850

Orange juice = 289

289 mL

**7** Ella and Ravi share some sweets in the ratio 3 : 5

Ravi gets 12 more sweets than Ella.

How many sweets do they share altogether? (3 marks)

difference = 5 − 3 = 2 parts

2 parts = 12, so 1 part = 6

total = 3 + 5 = 8 parts

8 × 6 = 48

Check: 18 and 30, 30 − 18 = 12

48 sweets

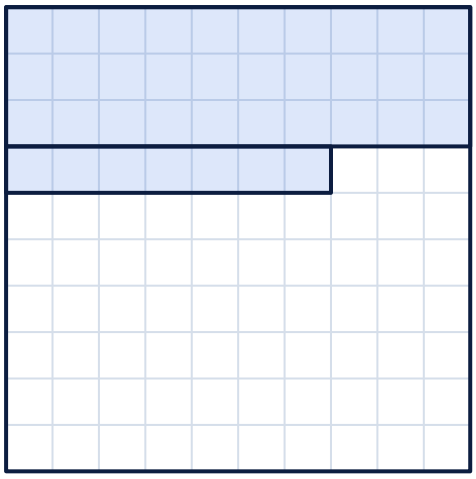

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**8** The grid is made of 100 equal squares. Some of the squares are shaded.

a. What percentage of the grid is shaded?

b. What percentage of the grid is not shaded?

c. Write the shaded part of the grid as a decimal.



(3 marks)

a) count the shaded squares

$3 \times 10 + 7 = 37$

per cent means out of 100

$\boxed{37\%}$

b)

$100 - 37 = 63$

$\boxed{63\%}$

c)

$37\% = \frac{37}{100}$

$= 0.37$

$\boxed{0.37}$


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**9** The $n$th term of a sequence is $5n - 3$

a. Work out the 12th term of the sequence.

b. Is 122 a term of the sequence? You must show how you get your answer.

(3 marks)

a)

12th term = 5 × 12 - 3

12th term = 60 - 3

12th term = 57

57

b)

$5n - 3 = 122$

$+3$: $5n = 125$ $+3$

$\div 5$: $n = 25$ $\div 5$

25 is a whole number

Yes, it is the 25th term

**10** Write these numbers in order of size, starting with the smallest.

$\frac{2}{5}$ 0.44 39% $\frac{1}{4}$

(2 marks)

Change all to decimals

$\frac{2}{5} = 0.4$

$0.44 = 0.44$

$39\% = 0.39$

$\frac{1}{4} = 0.25$

$0.25 < 0.39 < 0.4 < 0.44$

$\frac{1}{4}$, 39%, $\frac{2}{5}$, 0.44


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**11** Write these numbers in order of size, starting with the smallest.

0.3 $\frac{7}{25}$ 31% $\frac{3}{8}$ 0.295

(3 marks)

change them all to decimals

$\frac{7}{25} = \frac{28}{100}$

$= 0.28$

$31\% = 0.31$

$\frac{3}{8} = 3 \times 0.125$

$= 0.375$

compare with 3 decimal places

0.300 0.280 0.310 0.375 0.295

$\frac{7}{25}, 0.295, 0.3, 31\%, \frac{3}{8}$

**12** Make $x$ the subject of each equation.

a. $x + 5 = y$

b. $x - 3 = p$

c. $4x = t$

(3 marks)

a)

$x + 5 = y$

$-5 \quad x = y - 5 \quad -5$

$x = y - 5$

b)

$x - 3 = p$

$+3 \quad x = p + 3 \quad +3$

$x = p + 3$

c)

$4x = t$

$\div 4 \quad x = \frac{t}{4} \quad \div 4$

$x = \frac{t}{4}$


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**13** The $n$th term of a sequence is $6n - 1$

Write down the first three terms of the sequence.

(2 marks)

Substitute n = 1, 2, 3

$6 \times 1 - 1 = 5$

$6 \times 2 - 1 = 11$

$6 \times 3 - 1 = 17$

5, 11, 17

**14** Expand and simplify $2(x + 5) + 3(x + 1)$

(2 marks)

$2(x + 5) + 3(x + 1) = 2x + 10 + 3x + 3$

$= 5x + 13$

$5x + 13$

**15** Amy is $x$ years old.

Ben is 5 years older than Amy.

Chloe is twice as old as Amy.

a. Write down an expression, in terms of $x$, for Ben's age.

b. Write down an expression, in terms of $x$, for Chloe's age.

(2 marks)

a)

5 years older: add 5

Ben $= x + 5$

$x + 5$

b)

Twice as old: x 2

Chloe $= 2 \times x$

Chloe $= 2x$

$2x$


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**16** a. Simplify $8x + 5 - 3x + 2$

b. Simplify $2g \times 5g$

(3 marks)

a)

Collect $x$ terms

$8x - 3x = 5x$

Collect the numbers

$5 + 2 = 7$

$\boxed{5x + 7}$

b)

Multiply the numbers

$2 \times 5 = 10$

Multiply the letters

$g \times g = g^2$

$\boxed{10g^2}$

**17** A plumber charges a fixed call-out fee of £40 plus £28 for each hour of work.

The plumber works for $h$ hours on a job.

The total charge for the job is £$C$.

Write a formula for $C$ in terms of $h$.

(3 marks)

£28 for each of h hours

Hourly part $= 28 \times h$

Hourly part $= 28h$

Add the £40 call-out fee

$\boxed{C = 40 + 28h}$

**18** 5 packets of football stickers cost £3.50

Work out the cost of 8 packets of the same stickers.

(2 marks)

1 packet $= 3.50 \div 5 =$ £0.70

8 packets $= 8 \times 0.70 =$ £5.60

$\boxed{£5.60}$


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**19** Three friends compare their scores in a science test.

- Leah scored 17 out of 20
- Omar scored 82%
- Grace got 0.84 of the marks

Put the friends in order, starting with the highest score.

You must show your working. (3 marks)

change them all to percentages

$\frac{17}{20} = \frac{85}{100}$

$= 85\%$

$0.84 = 84\%$

Leah 85%, Grace 84%, Omar 82%

**Leah, Grace, Omar**

**20** Asha thinks of a number, $n$.

She multiplies her number by 4 and then subtracts 7. Her answer is 25.

a. Write an equation in $n$.

b. Solve your equation to find Asha's number. (3 marks)

a) x 4, then − 7, equals 25

**$4n - 7 = 25$**

b)

$4n - 7 = 25$

+7 $4n = 32$ +7

÷4 $n = 8$ ÷4

**$n = 8$**


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