Weekly check: Year 7 part 1

Worked solutions

KS3 Maths weekly check

This check online

1 Amir has £20

He buys a book costing £7.65 and a magazine costing £4.80

Work out how much money Amir has left.

(2 marks)

Total spent

£7.65 + £4.80 = £12.45

Money left

£20 − £12.45 = £7.55

£7.55

2 Write these fractions in order of size, starting with the smallest.

$\frac{2}{3}$ $\frac{3}{4}$ $\frac{7}{12}$ $\frac{5}{6}$

(2 marks)

Common denominator 12

$\frac{2}{3} = \frac{8}{12}$

$\frac{3}{4} = \frac{9}{12}$

$\frac{7}{12} = \frac{7}{12}$

$\frac{5}{6} = \frac{10}{12}$

$\frac{7}{12} < \frac{8}{12} < \frac{9}{12} < \frac{10}{12}$

$\frac{7}{12}, \frac{2}{3}, \frac{3}{4}, \frac{5}{6}$

3 Here are the lowest temperatures, in °C, recorded in five cities one winter night.

−3 −11 −0.5 −8 −1

Write the temperatures in order. Start with the coldest.

(2 marks)

further below zero = colder

−11 < −8 < −3 < −1 < −0.5

−11, −8, −3, −1, −0.5

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4 Amira has £25 in her bank account.

She spends £40 on a pair of trainers using her bank card.

The next day she pays in £12

What is her bank balance now?

(2 marks)

25 - 40 = -15

-15 + 12 = -3

-£3

5 Aisha finished a swimming session at 16:10.

The session lasted 1 hour 35 minutes.

Work out the time the session started.

(2 marks)

Count back from 16:10

16:10 - 1 hour → 15:10

15:10 - 10 minutes → 15:00

15:00 - 25 minutes → 14:35

Check: 14:35 + 1 h 35 min

14:35 + 1 h 35 min → 16:10 ✓

14:35

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6 On the clock face, draw the hour hand and the minute hand to show the time quarter to four.



(2 marks)

quarter to four = 3:45

45 ÷ 5 = 9, so the minute hand points at 9

hour hand: 45 minutes is $\frac{3}{4}$ of an hour

so it is $\frac{3}{4}$ of the way from 3 to 4

Long hand on 9, short hand just before 4

7 Work out

a. $\frac{3}{4} + \frac{1}{6}$

b. $\frac{5}{6} - \frac{2}{9}$

(4 marks)

a) common denominator 12

$$\frac{3}{4} + \frac{1}{6} = \frac{9}{12} + \frac{2}{12}$$

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

$\frac{11}{12}$

b) common denominator 18

$$\frac{5}{6} - \frac{2}{9} = \frac{15}{18} - \frac{4}{18}$$

$$= \frac{11}{18}$$

$\frac{11}{18}$

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8 Use the grid method to work out 58 × 37 (2 marks)

split 58 = 50 + 8 and 37 = 30 + 7

50 × 30 = 1500

50 × 7 = 350

8 × 30 = 240

8 × 7 = 56

1500 + 350 + 240 + 56 = 2146

2146

9 a. Write the number 4738 correct to 2 significant figures.

b. Write the number 0.05372 correct to 2 significant figures. (2 marks)

a)

4700 < 4738 < 4800

Next digit is 3

3 < 5, round down

Zeros keep the place value

4700

b)

Leading zeros do not count

0.053 < 0.05372 < 0.054

Next digit is 7

7 ⩾ 5, round up

0.054

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10 Write 360 as a product of powers of its prime factors. (3 marks)

Divide by primes

$360 \div 2 = 180$

$180 \div 2 = 90$

$90 \div 2 = 45$

$45 \div 3 = 15$

$15 \div 3 = 5$

5 is prime

$360 = 2 \times 2 \times 2 \times 3 \times 3 \times 5$

$\boxed{360 = 2^3 \times 3^2 \times 5}$

11 Use short division to work out 1438 ÷ 6

a. Give your answer with a remainder.

b. Give your answer as a mixed number in its simplest form. (2 marks)

a)

6 into 14 = 2 r 2

6 into 23 = 3 r 5

6 into 58 = 9 r 4

$\boxed{239 \text{ r } 4}$

b) remainder 4 out of 6

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

$\boxed{239\frac{2}{3}}$

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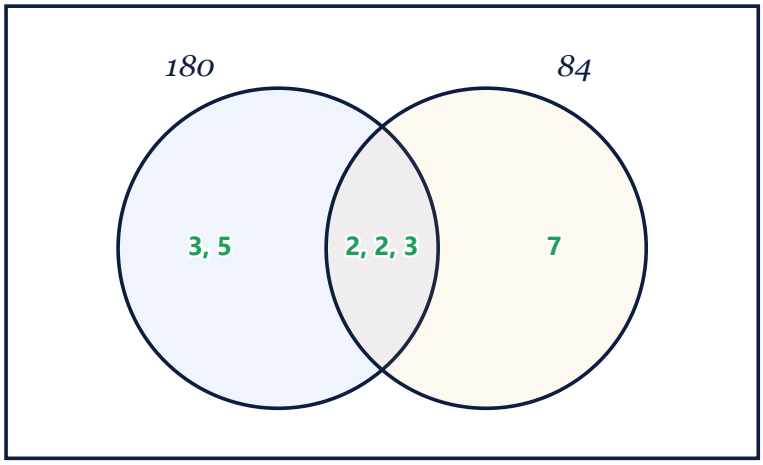
12 $180 = 2^2 \times 3^2 \times 5$

$84 = 2^2 \times 3 \times 7$

a. Complete the Venn diagram to show the prime factors of 180 and 84

b. Find the highest common factor (HCF) of 180 and 84

c. Find the lowest common multiple (LCM) of 180 and 84



(4 marks)

a)

180 = 2 x 2 x 3 x 3 x 5

84 = 2 x 2 x 3 x 7

shared: 2, 2, 3 go in the middle

180 only: 3, 5

84 only: 7

middle 2, 2, 3; left 3, 5; right 7

b) multiply the middle

2 x 2 x 3 = 12

HCF = 12

c) multiply everything

3 x 5 x 2 x 2 x 3 x 7 = 1260

LCM = 1260

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13 Use your calculator to work out

a. 2.3^3

b. $\sqrt{17.64}$

c. 3^7

(3 marks)

a) cube means x itself three times

$2.3^3 = 2.3 \times 2.3 \times 2.3$

$2.3^3 = 12.167$

12.167

b) check: $4.2 \times 4.2 = 17.64$

4.2

c) power button, then 7

2187

14 Mr Hussain has 42 pencils and 56 rubbers.

He puts them all into identical packs, with nothing left over.

a. What is the greatest number of packs he can make?

b. How many pencils and how many rubbers are in each pack?

(3 marks)

a) number of packs divides 42 and 56: HCF

42: 1, 2, 3, 6, 7, 14, 21, 42

56: 1, 2, 4, 7, 8, 14, 28, 56

HCF = 14

14 packs

b)

$42 \div 14 = 3$

$56 \div 14 = 4$

3 pencils and 4 rubbers

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15 Here are five numbers.

126 245 312 430 594

a. Write down the numbers that are multiples of 9

b. Write down the numbers that are multiples of 6

(2 marks)

a) digits add to a multiple of 9

1 + 2 + 6 = 9

2 + 4 + 5 = 11

3 + 1 + 2 = 6

4 + 3 + 0 = 7

5 + 9 + 4 = 18

126 and 594

b) even, and digits add to a multiple of 3

126: even, 9

312: even, 6

594: even, 18

245 is odd, 430 has digit sum 7

126, 312 and 594

16 96 pupils go on a school trip. $\frac{5}{8}$ of the pupils are in Year 7.

$\frac{1}{3}$ of the Year 7 pupils bring a packed lunch.

How many Year 7 pupils do not bring a packed lunch?

(3 marks)

Year 7 pupils

96 ÷ 8 = 12

5 × 12 = 60

packed lunch

60 ÷ 3 = 20

do not bring one

60 - 20 = 40

40 pupils

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17 Write true or false for each statement.

a. $-6 \geq -6$

b. $-4 \neq 4$

c. $-3 \leq -8$

(3 marks)

a) ≥ means greater than or equal to

$-6 = -6$

true

b) ≠ means not equal to

-4 and 4 are different

true

c) ≤ means less than or equal to

$-3 > -8$

false

18 Here is a list of numbers.

21 34 37 45 51 58 59

a. Write down the even numbers in the list.

b. Write down the prime numbers in the list.

(2 marks)

a)

even numbers end in 0, 2, 4, 6 or 8

34, 58

b)

check the odd numbers for factors

$21 = 3 \times 7$

$45 = 5 \times 9$

$51 = 3 \times 17$

37 and 59 have only 1 and themselves

37, 59

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19 Sophie adds up odd numbers, starting from 1.

1 = 1

1 + 3 = 4

1 + 3 + 5 = 9

1 + 3 + 5 + 7 = 16

a. Write down the next line of the pattern.

b. What type of numbers are the answers?

c. Use the pattern to work out 1 + 3 + 5 + 7 + 9 + 11 + 13 + 15 + 17 + 19 without adding the numbers one by one.

(3 marks)

a) next odd number is 9

$1 + 3 + 5 + 7 + 9 = 25$

$1 + 3 + 5 + 7 + 9 = 25$

b) 1, 4, 9, 16, 25

square numbers

c) count the odd numbers from 1 to 19

1, 3, 5, 7, 9, 11, 13, 15, 17, 19

that is 10 odd numbers

$10^2 = 100$

100

20 Zara works out 39.8 + 61.3 − 19.6

She gets 181.5

Use estimation to show that Zara must be wrong.

(2 marks)

round each number

$39.8 \approx 40$

$61.3 \approx 60$

$19.6 \approx 20$

$40 + 60 - 20 = 80$

about 80, so 181.5 is wrong

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