Foundation tier unit 1a check in test

Non-calculator

Q1. The table shows the heights of four mountains.

Mountain	Height (metres)
Diran	7266
Lhotse	8516
Cho Oyu	8188
Makalu	8485

What is the name of the highest of these mountains?

Q2. What is the value of the **2** in the number 28569?

Q3. The table shows the temperature every six hours one day in December.

Time	Temperature
12 midnight	–2 °C
6 am	–4 °C
12 noon	2 °C
6 pm	–3 °C

What time was the lowest temperature?

Q4. Which of these number statements is true?

$-3 < -8$ $\quad 10 + 3 \neq 13$ $\quad 6 > 4$ $\quad 2 - 12 = -14$

Q5. Write 2148 correct to the nearest 100

Q6. Sandy records the temperature at midnight one night as –2 °C.
Between midnight and 2am the temperature goes down 4°C.
Work out the temperature at 2am.

Q7. The bill for a meal is £96.
It is split equally between 8 people.
How much should each person pay?

Q8. Work out 6×-7

Q9. Three of these calculations have the same answer.
Which one does not?

$18 - 6 \times 2$ $(18 - 6) \div 2$ $(18 \div 6) \times 2$ $18 \div 6 - 2$

Q10. Work out an estimate for 113×285.

Topics listed in objectives

- Use and order positive and negative numbers (integers) and decimals; use the symbols <, > and understand the ≠ symbol;
- Add, subtract, multiply and divide positive and negative numbers (integers);
- Recall all multiplication facts to 10 × 10, and use them to derive quickly the corresponding division facts;
- Multiply or divide any number by powers of 10;
- Use brackets and the hierarchy of operations (not including powers);
- Round numbers to a given power of 10;
- Check answers by rounding and using inverse operations.

Answers

Q1. Lhotse
Q2. 20 000
Q3. 6am
Q4. 6 > 4
Q5. 2100
Q6. –6 °C
Q7. £12
Q8. –42
Q9. 18 ÷ 6 – 2
Q10. 30 000

Foundation tier unit 1b check in test

Non-calculator

Q1. In which of these numbers is the value of the 3 equal to three tenths?

18.35 13.1 11.53 30.7

Q2. Which of these number statements is false?

$4.5 > 4.4$ $3.62 < 3.6$ $7.54 > 7.53$ $2.18 < 2.2$

Q3. Work out 4.3 million + 6.5 million.
Give your answer in figures.

Q4. Work out $154.6 \div 100$

Q5. Work out $(3.1 + 1.7) \div 0.6$

Q6. Work out $(9 \times 0.3) - 0.5$

Q7. Noah buys coffee sachets to use in his coffee maker.
One day he buys enough coffee sachets to last him four weeks.

He uses 3 coffee sachets each day.
There are 10 coffee sachets in a pack.
A pack costs £2.99

How much does Noah spend?

Q8. One of these numbers is the same when rounded to 1 decimal place and when rounded to 2 significant figures. Which one?

10.548 13.267 9.532 10.357

Q9. Without working them out, decide which of these calculations must be incorrect.

$21.44 \div 3.2 = 6.7$ $3.4 \times 5.3 = 180.2$ $507.78 \div 6.3 = 80.6$ $9.3 \times 12.1 = 112.53$

Q10. Given that $3.7 \times 12.4 = 45.88$, find the value of 37×0.124

Topics listed in objectives

- Use decimal notation and place value;
- Identify the value of digits in a decimal or whole number;
- Compare and order decimal numbers using the symbols <, >;
- Understand the ≠ symbol (not equal);
- Write decimal numbers of millions, e.g. 2 300 000 = 2.3 million;
- Add, subtract, multiply and divide decimals, including calculations involving money;
- Multiply or divide by any number between 0 and 1;
- Round to the nearest integer;
- Round to a given number of decimal places and significant figures;
- Estimate answers to calculations by rounding numbers to 1 significant figure;
- Use one calculation to find the answer to another.

Answers

Q1. 18.35
Q2. $3.62 < 3.6$
Q3. 10 800 000
Q4. 1.546
Q5. 8
Q6. 2.2
Q7. £26.91
Q8. 9.532
Q9. $3.4 \times 5.3 = 180.2$
Q10. 4.588

Foundation tier unit 1c check in test

Non-calculator

Q1. What is the value of 7^2?

Q2. Which of these statements is not true?

$2^2 = 4$ $(-2)^2 = -4$ $\sqrt{16} = 4$ $\sqrt{16} = -4$

Q3. Which of these numbers is a cube number?

121 125 127 130

Q4. Work out 2^5

Q5. Work out the value of 10^5

Q6. Which of these is equal to 10^{-2}?

0.01 –100 100 –0.01

Q7. Work out $3^2 + 4 \times 5$

Q8. Work out $\frac{3+\sqrt{16}}{21}$

Q9. Work out $(3 + 5)^2 \div 4$

Q10. Evaluate $(2^5 \times 2^3) \div 2^4$

Topics listed in objectives

- Find squares and cubes:
  - recall integer squares up to 10 × 10 and the corresponding square roots;
  - understand the difference between positive and negative square roots;
  - recall the cubes of 1, 2, 3, 4, 5 and 10;
- Use index notation for squares and cubes;
- Recognise powers of 2, 3, 4, 5;
- Evaluate expressions involving squares, cubes and roots:
  - add, subtract, multiply and divide numbers in index form;
  - cancel to simplify a calculation;
- Use index notation for powers of 10, including negative powers;
- Use the laws of indices to multiply and divide numbers written in index notation;
- Use brackets and the hierarchy of operations with powers inside the brackets, or raising brackets to powers;
- Use calculators for all calculations: positive and negative numbers, brackets, square, cube, powers and roots, and all four operations.

Answers

Q1. 49
Q2. $(-2)^2 = -4$
Q3. 125
Q4. 32
Q5. 100 000
Q6. 0.01
Q7. 29
Q8. $\frac{1}{3}$
Q9. 16
Q10. $2^4 = 16$

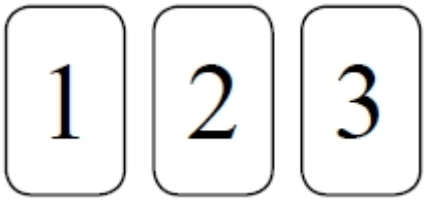
Spare question (calculator)

Work out $3.2^2 + \sqrt{7.5}$
Give your answer correct to 2 significant figures.
[answer: 13]

Foundation tier unit 1d check in test

Non-calculator

Q1. Sally has three tiles.
Each tile has a different number on it.



Sally puts the three tiles down to make a number.
Each number is made with all three tiles.
How many different numbers can Sally make?

Q2. Which of these four numbers is a prime number?

9 17 21 25

Q3. Anne-Marie wrote down the factors of 32.
Which factor is missing from her list?

1 2 4 16 32

Q4. List the common factors of 120 and 210.

Q5. Find the Lowest Common Multiple (LCM) of 12 and 20.

Q6. Find the Highest Common Factor (HCF) of 24 and 60.

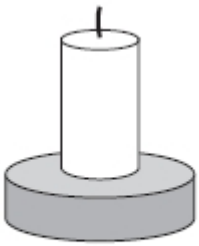
Q7. Express 180 as a product of its prime factors.

[Q8–9 linked]

Q8. Given that $A = 2^4 \times 3^3 \times 5$ and $B = 2^3 \times 3 \times 5^2$
find the highest common factor (HCF) of A and B

Q9. Given that $A = 2^4 \times 3^3 \times 5$ and $B = 2^3 \times 3 \times 5^2$
find, as a product of powers of its prime factors, the lowest common multiple (LCM) of A and B.

Q10. Caroline is making some table decorations.
Each decoration is made from a candle and a holder.



candle and holder

Caroline buys some candles and some holders each in packs.

There are 30 candles in a pack of candles.
There are 18 holders in a pack of holders.

Caroline buys exactly the same number of candles and holders.
How many packs of candles and how many packs of holders does Caroline buy?

Topics listed in objectives

- List all three-digit numbers that can be made from three given integers;
- Recognise odd, even and prime (two digit) numbers;
- Identify factors and multiples and list all factors and multiples of a number systematically;
- Find the prime factor decomposition of positive integers and write as a product using index notation;
- Find common factors and common multiples of two numbers;
- Find the LCM and HCF of two numbers, by listing, Venn diagrams and using prime factors: include finding LCM and HCF given the prime factorisation of two numbers;
- Understand that the prime factor decomposition of a positive integer is unique – whichever factor pair you start with – and that every number can be written as a product of two factors;
- Solve simple problems using HCF, LCM and prime numbers.

Answers

Q1. 6
Q2. 17
Q3. 8
Q4. 1, 3, 5, 15
Q5. 60
Q6. 12
Q7. $2^2 \times 3^2 \times 5$
Q8. $2^3 \times 3 \times 5$
Q9. $2^4 \times 3^3 \times 5^2$
Q10. 3 packs of candles, 5 packs of holder