

GCSE Maths: Inverse operations, cancelling and reciprocals (Foundation): answers

GCSE Maths - Number Basics - Foundation - Lesson 1.7

Answers. Final answers to the worksheet questions. Full step-by-step solutions for every question are free at websink.site/gcse/maths/ch01-number-basics/foundation/inverse-operations-cancelling-and-reciprocals/

Exercise 1H Inverse operations, cancelling and reciprocals Non-calculator

1 Find each missing number.

(a) $? + 7 = 20$

Answer: 13

(b) $? - 8 = 15$

Answer: 23

(c) $35 - ? = 12$

Answer: 23

(d) $6 \times ? = 54$

Answer: 9

(e) $? \div 4 = 9$

Answer: 36

(f) $72 \div ? = 8$

Answer: 9

2 I think of a number. Work out the number in each case.

(a) I multiply it by 3 and subtract 4. The answer is 23.

Answer: 9

(b) I add 8 and then multiply by 2. The answer is 30.

Answer: 7

(c) I divide it by 5 and then add 3. The answer is 11.

Answer: 40

3 Write down the inverse (opposite) of each operation.

(a) The inverse of adding 9

Answer: subtracting 9

(b) The inverse of multiplying by 6

Answer: dividing by 6

(c) The inverse of subtracting 15

Answer: adding 15

(d) The inverse of dividing by 4

Answer: multiplying by 4

(e) The inverse of squaring

Answer: square rooting

(f) The inverse of cube rooting

Answer: cubing

4 Use the inverse operation to decide whether each answer is correct.

(a) $342 \times 15 = 5130$

Answer: Correct

(b) $7524 \div 12 = 627$

Answer: Correct

(c) $1000 - 468 = 542$

Answer: Incorrect

5 You are given that $23 \times 47 = 1081$. Use this fact to work out each calculation.

(a) 230×47

Answer: 10 810

(b) 23×4.7

Answer: 108.1

(c) 2.3×470

Answer: 1081

(d) $1081 \div 23$

Answer: 47

(e) $10\,810 \div 47$

Answer: 230

(f) $108.1 \div 23$

Answer: 4.7

6 You are given that $6 \times 7 = 42$. Use this to work out each calculation.

(a) 60×7

Answer: 420

(b) 0.6×7

Answer: 4.2

(c) $420 \div 7$

Answer: 60

7 Write down the reciprocal of each number.

(a) 5

Answer: $\frac{1}{5}$

(b) $\frac{2}{3}$

Answer: $\frac{3}{2}$

(c) 0.25

Answer: 4

(d) 0.4

Answer: $\frac{5}{2} = 2.5$

(e) $\frac{1}{8}$

Answer: 8

8 Explain why the number 0 does not have a reciprocal.

Answer: Because $1 \div 0$ cannot be worked out

9 Work out each calculation by cancelling first.

(a) $37 \times 18 \div 18$

Answer: 37

(b) $125 \times 48 \div 8$

Answer: 750

(c) $15 \times 24 \div 6$

Answer: 60

(d) $72 \times 35 \div 9$

Answer: 280

10 A jug holds 6 litres of juice. How many glasses of 0.25 litres can be filled?

Answer: 24 glasses

11 Sam says "Dividing by 0.1 is the same as multiplying by 10." Is Sam correct? Explain.

Answer: Yes

Exercise 11 Calculator: powers, roots and reciprocals

Calculator allowed

1 Use a calculator to work out each value.

(a) $(2.5)^2$

Answer: 6.25

(b) $(1.2)^3$

Answer: 1.728

(c) $\sqrt{20.25}$

Answer: 4.5

(d) $\sqrt[3]{0.027}$

Answer: 0.3

(e) $(0.4)^2 + (0.3)^2$

Answer: 0.25

(f) $\sqrt{((0.6)^2 + (0.8)^2)}$

Answer: 1

2 Use the reciprocal key x^{-1} on your calculator to find the reciprocal of each number.

(a) 0.8

Answer: $\frac{5}{4} = 1.25$

(b) 0.5

Answer: 2

(c) 1.25

Answer: $\frac{4}{5} = 0.8$

(d) 0.2

Answer: 5

3 Work out $\frac{1}{0.4} + \frac{1}{0.5}$. Show every step.

Answer: 4.5

4 A square has sides of length 6.5 cm and a smaller square has sides 3.5 cm. Work out how much bigger the area of the large square is.

Answer: 30 cm²

5 Work out the length of the longest side of a right-angled triangle with shorter sides 5 cm and 12 cm, using $\sqrt{5^2 + 12^2}$.

Answer: 13 cm