

# GCSE Maths: Inverse operations, cancelling and reciprocals (Higher): worksheet

GCSE Maths - Number Basics - Higher - Lesson 1.7

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Score: \_\_\_\_\_

21 questions. Write your answers in the spaces. Answers and step-by-step help are free at [websink.site/gcse/maths/ch01-number-basics/higher/inverse-operations-cancelling-and-reciprocals/](https://websink.site/gcse/maths/ch01-number-basics/higher/inverse-operations-cancelling-and-reciprocals/)

## Exercise 1H Inverse operations, cancelling and reciprocals

Non-calculator

### 1 Find each missing number.

(a)  $? + 7 = 20$

Answer: \_\_\_\_\_

(b)  $? - 8 = 15$

Answer: \_\_\_\_\_

(c)  $35 - ? = 12$

Answer: \_\_\_\_\_

(d)  $6 \times ? = 54$

Answer: \_\_\_\_\_

(e)  $? \div 4 = 9$

Answer: \_\_\_\_\_

(f)  $72 \div ? = 8$

Answer: \_\_\_\_\_

### 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: \_\_\_\_\_

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

Answer: \_\_\_\_\_

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

Answer: \_\_\_\_\_

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

(a)  $342 \times 15 = 5130$

Answer: \_\_\_\_\_

(b)  $7524 \div 12 = 627$

Answer: \_\_\_\_\_

(c)  $1000 - 468 = 542$

Answer: \_\_\_\_\_

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

**(a)**  $230 \times 47$

Answer: .....

**(b)**  $23 \times 4.7$

Answer: .....

**(c)**  $2.3 \times 470$

Answer: .....

**(d)**  $1081 \div 23$

Answer: .....

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

Answer: .....

**(f)**  $108.1 \div 23$

Answer: .....

**5 Write down the reciprocal of each number.**

**(a)** 5

Answer: .....

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

Answer: .....

**(c)** 0.25

Answer: .....

**(d)** 0.4

Answer: .....

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

Answer: .....

**6 Explain why the number 0 does not have a reciprocal.**

Answer: .....

**7 Work out each calculation by cancelling first.**

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

Answer: .....

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

Answer: .....

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

Answer: .....

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

Answer: .....

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

Answer: .....

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

Answer:

**10** Use cancelling to simplify each expression.

(a)  $6x \div 6$

Answer:

(b)  $(4a \times 5) \div 5$

Answer:

(c)  $y + 9 - 9$

Answer:

**11** Write down the reciprocal of each number.

(a)  $2 \frac{1}{4}$

Answer:

(b) 0.125

Answer:

(c) 1.6

Answer:

**12** Work out each calculation. Use reciprocals.

(a)  $12 \div 0.25$

Answer:

(b)  $9 \div 0.75$

Answer:

(c)  $20 \div 0.4$

Answer:

**13** A rope is 4.5 m long. It is cut into pieces that are each 0.15 m long. How many pieces are there?

Answer:

**14** Zara says, "The reciprocal of a number is always smaller than the number." Is she correct? Give examples to support your answer.

Answer:

## Exercise 11 Calculator: powers, roots and reciprocals

Calculator allowed

**1** Use a calculator to work out each value.

(a)  $(2.5)^2$

Answer:

(b)  $(1.2)^3$

Answer:

(c)  $\sqrt{20.25}$

Answer:

(d)  ${}^3\sqrt{0.027}$

Answer: .....

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

Answer: .....

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

Answer: .....

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

(a) 0.8

Answer: .....

(b) 0.5

Answer: .....

(c) 1.25

Answer: .....

(d) 0.2

Answer: .....

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

Answer: .....

**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: .....

**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: .....

**6** Write down the value of  $4^3 +$  the cube root of 125.

Answer: .....

**7** Explain why the reciprocal of 0.2 is bigger than the reciprocal of 0.5.

Answer: .....