

Pack B · Fluency

Answer all questions. Show your working. Questions are grouped by challenge level.

BRONZE

Questions 1–10

1. Maria places 1 on a number line. She says it is 5 steps to the right of -4. Is she correct? Justify using the number line.

2. Which is greater, -10 or -6? Justify by describing their positions on a number line.

3. Two negative integers add to -15. Give one possible pair and justify that both numbers are negative and their sum is correct.

4. The temperature is 5°C . It falls by 14°C . What is the new temperature? Explain which direction the fall takes you on a number line.

5. Bob says " $-7 \times 5 = 35$ ". Spot the error and give the correct answer with a reason.

6. If $20 \div 4 = 5$, what is $20 \div (-4)$? Justify using the sign rules.

7. A bank account has £30. The account holder spends £47. What is the new balance and what does the negative sign mean in context?

8. What is the distance between -6 and 5 on a number line? Show your method.

9. Sam says "negative $\times$ negative = negative". Is Sam correct? Give an example and a counter-example if needed.

10. A diver is at 20 m below sea level (so their position is -20 m). They rise 13 m. Write a calculation and find the new position.

11. Write in order from smallest to largest: -12, 7, -3, -8, 2.
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12. Calculate $-12 + 7 + -4$.
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13. Calculate $-5 - (-13)$.
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14. Calculate $-20 + 8$, then subtract -5 from your answer.
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15. Calculate $-5 \times 4 + 26$.
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16. Calculate $-35 \div 7 - 3$.
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17. The temperature starts at -7°C and falls by 9°C overnight. By midday it has risen 20°C . What is the midday temperature?
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18. Find the value of $\square$ if $\square + (-9) = -3$.
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19. Find the midpoint of -10 and 2 on a number line.
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20. A bank account holds £20. Two payments of £31 and £12 are debited. What is the new balance?
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21. Find the LCM of 8 and 20. State whether your answer is positive or negative, and explain why.
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22. Evaluate $(-7)^2$. Then evaluate $(7)^2$. What do you notice?
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23. Work out $-4 \times 7 + 30 \div (-5)$.
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24. Two integers multiply to give -24. One integer is 6. Find the other integer.
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25. Work out $(-6 + 2) \times (-3)$.
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26. Evaluate $-(4^2) + 20$.
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27. A submarine is at 120 m below sea level. It rises 65 m. What is its new depth? (Use a negative number to represent depth below sea level.)
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28. Find the HCF of 20 and 28. A diver records two temperatures: $-(\text{HCF})^\circ\text{C}$ and $+(\text{HCF})^\circ\text{C}$. What is the difference between the warmer and colder temperatures?
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29. Evaluate $(-3)^3 + (-2)^2$.
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30. Start with -15. Add 9. Then multiply the result by -3.
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31. Two negative integers multiply to give 24. Their sum is -10. Find both integers.
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32. Evaluate $(-3)^4 - (-2)^3$.
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33. Two integers have product -30 and sum 1. Find both integers.
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34. Write 40 as a product of prime factors. Call this result p . Now evaluate $p \div (-5)$.
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35. Find the LCM of 4 and 10. Call it n . Calculate $-n^2$.
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36. A sequence begins -30, -23, -16, -9, ... and increases by a constant amount each time. Find the 10th term.
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37. Solve $x^2 = 36$. For each solution x , calculate $x^2 - 6x$.
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38. A temperature starts at -25°C . It rises by the LCM of 6 and 10 degrees. What is the final temperature?
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39. Let a be negative and b be negative. State whether each expression is positive, negative, or could be either: (i) $a \times b$, (ii) $a + b$, (iii) $a \div b$.
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40. Evaluate $(-4)^2 - 3 \times (-7) + 20 \div (-4)$.
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