

# Pack A · Fluency

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

**BRONZE**

Questions 1–10

1. Maria places  $-2$  on a number line. She says it is 3 steps to the right of  $-5$ . Is she correct? Justify using the number line.  
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2. Which is greater,  $-7$  or  $-3$ ? Justify by describing their positions on a number line.  
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3. Two negative integers add to  $-12$ . Give one possible pair and justify that both numbers are negative and their sum is correct.  
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4. The temperature is  $3^{\circ}\text{C}$ . It falls by  $10^{\circ}\text{C}$ . What is the new temperature? Explain which direction the fall takes you on a number line.  
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5. Bob says " $-6 \times 4 = 24$ ". Spot the error and give the correct answer with a reason.  
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6. If  $18 \div 3 = 6$ , what is  $18 \div (-3)$ ? Justify using the sign rules.  
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7. A bank account has  $\text{£}20$ . The account holder spends  $\text{£}35$ . What is the new balance and what does the negative sign mean in context?  
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8. What is the distance between  $-4$  and  $7$  on a number line? Show your method.  
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9. Sam says "negative  $\times$  negative = negative". Is Sam correct? Give an example and a counter-example if needed.  
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10. A diver is at  $15\text{ m}$  below sea level (so their position is  $-15\text{ m}$ ). They rise  $8\text{ m}$ . Write a calculation and find the new position.  
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11. Write in order from smallest to largest: -9, 4, -1, -6, 0.
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12. Calculate  $-8 + 5 + -3$ .
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13. Calculate  $-2 - (-9)$ .
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14. Calculate  $-14 + 6$ , then subtract -3 from your answer.
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15. Calculate  $-4 \times 3 + 15$ .
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16. Calculate  $-24 \div 6 - 2$ .
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17. The temperature starts at  $-3^{\circ}\text{C}$  and falls by  $8^{\circ}\text{C}$  overnight. By midday it has risen  $14^{\circ}\text{C}$ . What is the midday temperature?
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18. Find the value of  $\square$  if  $\square + (-6) = -2$ .
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19. Find the midpoint of -8 and 4 on a number line.
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20. A bank account holds £15. Two payments of £23 and £7 are debited. What is the new balance?
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21. Find the LCM of 12 and 18. State whether your answer is positive or negative, and explain why.
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22. Evaluate  $(-5)^2$ . Then evaluate  $(5)^2$ . What do you notice?
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23. Work out  $-3 \times 5 + 18 \div (-6)$ .
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24. Two integers multiply to give -15. One integer is 5. Find the other integer.
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25. Work out  $(-8 + 3) \times (-2)$ .
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26. Evaluate  $-(5^2) + 30$ .
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27. A submarine is at 80 m below sea level. It rises 35 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 18 and 24. 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  $(-2)^3 + (-1)^2$ .
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30. Start with -12. Add 8. Then multiply the result by -2.
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31. Two negative integers multiply to give 36. Their sum is -13. Find both integers.
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32. Evaluate  $(-2)^4 - (-3)^3$ .
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33. Two integers have product -20 and sum -1. Find both integers.
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34. Write 36 as a product of prime factors. Call this result  $p$ . Now evaluate  $p \div (-4)$ .
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35. Find the LCM of 4 and 6. Call it  $n$ . Calculate  $-n^2$ .
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36. A sequence begins -25, -19, -13, -7, ... and increases by a constant amount each time. Find the 10th term.
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37. Solve  $x^2 = 25$ . For each solution  $x$ , calculate  $x^2 - 5x$ .
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38. A temperature starts at  $-18^\circ\text{C}$ . It rises by the LCM of 4 and 6 degrees. What is the final temperature?
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39. Let  $a$  be negative and  $b$  be positive. 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  $(-3)^2 - 4 \times (-5) + 18 \div (-6)$ .
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