

Name _____

Date _____

1.2 Multiplying and dividing integers — worksheet

Multiply and divide with positive and negative integers. · 60 questions · Show your working.

Remember

- **positive** × **positive** = **positive** e.g. $6 \times 7 = 42$
- **positive** × **negative** = **negative** e.g. $9 \times (-4) = -36$
- **negative** × **negative** = **positive** e.g. $(-8) \times (-5) = 40$
- The same three rules apply to division.
- In a chain of multiplications, count the negative factors: an **even** number of negatives gives a positive answer, an **odd** number gives a negative answer.
- Watch the brackets: $(-4)^2 = 16$ but $-4^2 = -16$.

A · Fluency — Sign rules, powers of negatives and chains.

1 $-6 \times 7 =$

2 $9 \times (-4) =$

3 $-8 \times (-5) =$

4 $-3 \times 12 =$

5 $11 \times (-3) =$

6 $-7 \times (-7) =$

7 $-1 \times 15 =$

8 $20 \times (-5) =$

9 $-48 \div 6 =$

10 $-72 \div (-9) =$

11 $56 \div (-7) =$

12 $-100 \div 25 =$

13 $84 \div (-12) =$

14 $-60 \div (-4) =$

15 $-144 \div 12 =$

16 $150 \div (-30) =$

17 $(-5)^2 =$

18 $(-2)^3 =$

19 $(-10)^2 =$

20 $(-3)^3 =$

21 $(-1)^3 =$

22 $(-4)^2 =$

23 $-3 \times (-4) \times (-2) =$

24 $-60 \div (-4) \div 5 =$

25 $-4 \times 6 \div (-3) =$

26 $2 \times (-5) \times (-6) =$

27 $-96 \div 8 \div (-2) =$

28 $-2 \times (-2) \times (-2) \times (-2) =$

B · Reasoning — Missing integers and order of operations.

29 Fill in the missing integer: $__ \times 5 = -15$

30 Fill in the missing integer: $__ \div 4 = -8$

31 Fill in the missing integer: $-7 \times __ = 63$

32 Fill in the missing integer: $__ \div (-8) = -6$

33 Fill in the missing integer: $-54 \div __ = 6$

- 34 Without calculating, is $-2 \times (-3) \times (-4) \times (-5)$ positive or negative?
☐ Positive
☐ Negative
- 35 Without calculating, is $(-1) \times (-1) \times (-1) \times (-1) \times (-1)$ positive or negative?
☐ Positive
☐ Negative
- 36 Arun says " $(-4)^2 = -16$ ". Is he correct?
☐ Yes
☐ No
- 37 The product of two integers is -36 . One of them is 9. What is the other?

- 38 $a \times b = -56$ and $a = -8$. Work out b .

- 39 Work out $-3 \times 4 + -5 \times 2$.

- 40 Work out $20 \div (-4) - 3 \times (-6)$.

C · Challenge — Products, sums and extremes.

- 41 The product of two integers is -24 and their sum is 5. What is the larger integer?

- 42 The product of two integers is -24 and their sum is 5. What is the smaller integer?

- 43 What is the largest product you can make by multiplying two different numbers chosen from $-9, -4, 2, 6$?

- 44 What is the smallest product you can make by multiplying two different numbers chosen from $-9, -4, 2, 6$?

- 45 Work out $(-2)^3 \times (-3)^2$.

- 46 Work out $(-6)^2 \div (-3) \times 2$.

- 47 How many different pairs of integers multiply to give -12 ? (Count -1×12 and 12×-1 as the same pair.)

- 48 n is a negative integer. What is the value of $n^2 \div n$ when $n = -7$?

D · Word problems — Repeated change in real contexts.

- 49** A diver descends 8 m every minute. How far below the surface is she after 6 minutes? Give your answer as a negative number of metres.
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- 50** The temperature drops 3 °C every hour for 7 hours. What is the total change in temperature, in °C?
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- 51** A shop loses \$250 each week. Over how many weeks does it lose \$2 000?
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- 52** Five friends share a debt of \$85 equally. How much does each owe, in dollars? Give your answer as a negative number.
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- 53** A submarine descends at 12 m per minute from the surface. How long, in minutes, until it reaches –180 m?
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- 54** A freezer cools at 4 °C per hour. It started at 18 °C. What is the temperature after 6 hours, in °C?
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- 55** A game gives –15 points for each wrong answer. Mia scored –90 from wrong answers only. How many did she get wrong?
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- 56** In a quiz you gain 5 points for a correct answer and lose 3 for a wrong one. Rashid answers 12 questions and gets 7 correct. What is his score?
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- 57** A mine shaft goes down 9 m per level for 14 levels. What is the depth of the bottom, in metres? (Use a negative number.)
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- 58** A bank charges \$6 for every day an account is overdrawn. After some days the charges total \$150. For how many days was the account overdrawn?
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- 59** A weather balloon's temperature reading changes by –2 °C for every 300 m it rises. It rises 2 100 m. What is the total change, in °C?
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- 60** Three people each owe \$24. What is the total debt, in dollars? Give your answer as a negative number.
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