

Four ^{działania} Operations Revision Worksheet

^{liczby całkowite nieujemne} Whole Numbers , ^{ułamki dziesiętne} Decimals , and ^{ujemne} Negative Numbers

Section 1: ^{dodawanie} Addition and ^{odejmowanie} Subtraction

Remember: Line up the ^{przecinki dziesiętne} decimal points carefully. When working with ^{ujemne} negatives, think about the ^{znak} sign!

1. $45 + 376 =$

4. $-12 + 7 =$

2. $328.5 + 19.47 =$

5. $56.3 - 18.72 =$

3. $7.63 + (-2.8) =$

6. $-4 - (-9) =$

Section 2: ^{mnożyć} Multiplication

Remember:

- Count the ^{znaki} signs: an ^{parzysta} even number of ^{ujemne} negatives gives a ^{liczba dodatnia} positive answer, an ^{liczba nieparzysta} odd number gives a ^{ujemna} negative answer.
- We need to be careful when multiplying ^{ułamki dziesiętne} decimals , and keep track of the ^{przecinek dziesiętny} decimal point , three methods are described below.

For the example ^{mnożyć} multiplication: 3.4×1.2 , the three options are:

1. Factoring Up to ^{liczby całkowite nieujemne} Whole Numbers

We can make both numbers whole by multiplying by ^{potęgi} powers of 10. These are 10, 100, 1 000, 10 000, ... etc.

Multiply 3.4 by 10 to make it 34. Multiply 1.2 by 10 to make it 12.

Now we have:

$$34 \times 12 = 408$$

But we multiplied the numbers by $10 \times 10 = 100$, so we divide the answer by 100:

$$\frac{408}{100} = 4.08$$

2. Counting ^{miejsca dziesiętne} Decimal Places

1. Multiply the numbers as if there are no ^{przecinki dziesiętne} decimal points .
2. Count how many ^{miejsca dziesiętne} decimal places there are in total in the question.
3. Put that many ^{miejsca dziesiętne} decimal places back into your answer.

Example: 3.4×1.2

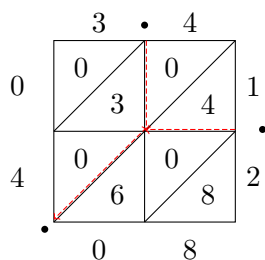
Ignore the ^{ułamki dziesiętne} decimals : $34 \times 12 = 408$

There is ^{miejsce dziesiętne} 1 decimal place in 3.4 and 1 in 1.2, so **2 in total**.

So the answer is 4.08

3. Lattice Method with ^{ułamek dziesiętny} Decimal Alignment

You can use the lattice method to track the ^{przecinki dziesiętne} decimal points too.



przecinki dziesiętne

Find where the **decimal points** in each number meet, then follow the diagonal down to the left, that will be where the **przecinek dziesiętny** **decimal point** is in the answer.

In the example above we get 4.08, the same as before!

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Now try these questions:

1. $24 \times 6 =$

5. $3.4 \times 1.2 =$

9. $-3 \times 4 =$

2. $-2 \times -3 \times -2 =$

6. $5.6 \times (-0.3) =$

10. $0.0034 \times 68.7 =$

3. $0.25 \times 0.4 =$

7. $12.5 \times 0.08 =$

11. $-4.2 \times 0.5 \times -0.5 =$

4. $1.2 \times 0.06 =$

8. $0.09 \times 0.7 =$

12. $-0.6 \times -0.3 \times -2 =$

Section 3: ^{dzielenie} Division

Remember:

- Use the bus stop method unless you can do it in your head.

- If the ^{dzielnik} divisor is a ^{ułamek dziesiętny} decimal, you need to make it a ^{liczba całkowita nieujemna} whole number (remember to apply the ^{dzielnik} factor to both numbers!):

$$66 \div 0.33 = 6600 \div 33 = 200$$

- Chunk larger ^{dzielniki} divisors into smaller ^{dzielniki} factors if helpful.

$$176 \div 16 = (176 \div 4) \div 4 = 44 \div 4 = 11$$

^{dzielenie} Division Practice

- | | | |
|---------------------------------------|-----------------------|-------------------------|
| 1. $84 \div 7 =$ | 5. $-9 \div -3 =$ | 10. $-12.6 \div 0.3 =$ |
| 2. $156 \div 12 =$
(Try chunking!) | 6. $8280 \div 24 =$ | 11. $0.56 \div 0.08 =$ |
| 3. $48 \div (-6) =$ | 7. $3.6 \div 0.6 =$ | 12. $6.4 \div (-0.2) =$ |
| 4. $4.8 \div 0.4 =$ | 8. $0.84 \div 0.07 =$ | 13. $-1.8 \div 0.3 =$ |
| | 9. $7.2 \div 0.6 =$ | 14. $-0.45 \div 0.05 =$ |

Section 4: Mixed Practice

Challenge yourself! Decide which methods to use.

- | | |
|------------------------------|----------------------------------|
| 1. $12.5 + (-3.4) =$ | 3. $24 \div (-6) + 5 \times 2 =$ |
| 2. $-3 \times 4 \times -2 =$ | 4. $6.3 \div 0.3 =$ |

5. $(-2.4 \times 3.5) \div -0.7 =$

8. $-8 \times (5 - 7) =$

6. $-15 + 28.4 \div 4 =$

9. $9.6 \div 1.2 + (-3) \times 2 =$

7. $7.25 - 3.68 =$

10. $-36 \div (-9) =$

Extension Word Problems

1. The temperature was -3°C and dropped by 5°C overnight. What is the new temperature?
2. A scuba diver descends 2.5 m per minute for 4 minutes, then ascends 3 m. What is the diver's final depth?
3. A submarine starts at sea level and travels vertically -4.2 km, then another -3.8 km. How far is it from the surface now? What is the submarine's wysokość altitude ?
4. Some numbers produce ułamki okresowe recurring decimals when used as dzielniki divisors . Find the ułamek dziesiętny decimal result of 1 divided by each of the first 7 liczby pierwsze prime numbers . Some results kończą się terminate while others recur. Can you explain why?