

NEGATIVE NUMBERS & PLACE VALUE

Mental Maths • Activities • Puzzles • Real-Life Problem Solving

What's inside	Core skills
12 printable pages of structured practice, games, mental maths and reasoning challenges.	Place value • comparing numbers • negative numbers • number lines • integer operations • puzzles • real-life contexts

Suggested age: 11–14 years • Grades 6–8 • KS3

International alignment: supports common lower-secondary expectations for place value, rational numbers and operations with negative numbers, including Common Core 6.NS and 7.NS strands.

Name: _____ Date: _____

Learning Targets

I can identify the value of digits, write numbers in different forms, compare and order numbers, locate positive and negative numbers, and calculate with integers.

Place Value Warm-Up

1. What is the value of the 7 in 7,432?

2. What is the value of the 3 in 53,108?

3. Write 6,205 in expanded form.

4. Write $4,000 + 300 + 20 + 9$ as one number.

5. Which is greater: 8,090 or 8,900?

6. Round 6,748 to the nearest hundred.

7. How many tens are in 4,500?

8. What is 1,000 more than 7,250?

Key idea: The value of a digit depends on its position. A zero can be a place holder.

A. Build the Number

1. Write the number with 5 thousands, 3 hundreds, 7 tens and 2 ones.

2. Write 8,406 in words.

3. Write 9,050 in expanded form.

4. Which digit is in the hundreds place in 72,641?

5. Which digit has a value of 6,000 in 16,482?

6. Change the 4 in 4,582 to a 9. How much does the number increase?

B. Place Value Puzzle

I am a four-digit number. My thousands digit is 6. My hundreds digit is 2 less than my thousands digit. My tens digit is 3 more than my hundreds digit. My ones digit is 1 less than my tens digit. What number am I?

Mental Maths Challenge

1. Put $<$, $>$ or $=$: 4,506 ___ 4,560.

2. Put $<$, $>$ or $=$: -3 ___ -7 .

3. Order from smallest to largest: 8, 2, 0, -5 , -1 .

4. Order from largest to smallest: -2 , 5, -8 , 3, 0.

5. Round 48,762 to the nearest thousand.

6. Round 5,649 to the nearest hundred.

7. Which is closer to 10,000: 9,650 or 10,420?

8. What is the smallest whole number that rounds to 5,000 to the nearest thousand?

Number Sense

Explain why -8 is less than -3 even though 8 is greater than 3.

Think of a number line as a journey: moving right increases the value; moving left decreases it.

1. Which is greater: -2 or -6 ?

2. Which is smaller: -9 or -4 ?

3. Write the opposite of 7.

4. Write the opposite of -12 .

5. How far is -3 from 0?

6. How far is -7 from 2?

7. Start at -4 and move 9 steps right. Where do you land?

8. Start at 5 and move 12 steps left. Where do you land?

Temperature Puzzle

At 6 a.m. the temperature is -4°C . By midday it rises 9°C . What is the new temperature?

Challenge: Give two different numbers whose distance from 0 is 8.

Use a number line, counters or mental strategies.

1. Calculate: $-3 + 7$.

2. Calculate: $6 + (-9)$.

3. Calculate: $-8 + 5$.

4. Calculate: $-4 + (-6)$.

5. Calculate: $12 - 17$.

6. Calculate: $-5 - 4$.

7. Calculate: $9 - (-3)$.

8. Calculate: $-7 - (-8)$.

9. Calculate: $-12 + 20$.

10. Calculate: $15 + (-15)$.

Integer Race

Start at -10 . Add 6, subtract 3, add 8, then subtract 5. Where do you finish?

Sign rule: same signs → positive; different signs → negative.

1. Calculate: $(-4) \times 6$.

2. Calculate: $(-7) \times (-3)$.

3. Calculate: $8 \times (-5)$.

4. Calculate: $(-36) \div 6$.

5. Calculate: $(-48) \div (-8)$.

6. Calculate: $63 \div (-9)$.

7. Calculate: $(-5) \times (-2) \times 3$.

8. Calculate: $(-72) \div (-6)$.

Mental Maths Challenge

Without writing a full calculation, decide whether each answer is positive or negative: $(-8) \times (-2)$, $(-15) \div 5$, $7 \times (-4)$, $(-18) \div (-3)$.

1. Morning temperature is -6°C . It rises 11°C . What is the new temperature?

2. A diver is 18 m below sea level. She rises 7 m. What is her new position?

3. A bank account is at $-\$25$. A deposit of $\$60$ is made. What is the new balance?

4. A lift is on floor -3 and travels up 8 floors. Which floor does it reach?

5. A mountain campsite is at 2,400 m. A nearby valley is 3,100 m lower. What is the valley's elevation?

6. A game gives +5 points for a correct answer and -3 for an incorrect answer. A player gets 6 correct and 4 incorrect. What is the total score?

Solve each clue. Use the answer to unlock the secret number.

1. $-7 + 12 = ?$

2. $15 - 23 = ?$

3. $(-4) \times (-5) = ?$

4. $-36 \div 6 = ?$

5. What is the place value of 6 in 6,432?

6. Round 7,649 to the nearest hundred.

7. Opposite of $-18 = ?$

8. Distance between -5 and $7 = ?$

Secret Number

Add your eight answers. What number do you get?

Bonus: Can you create a different eight-question code whose final total is 100?

Identify the error, explain why it is wrong, and correct it.

1. A student says -8 is greater than -3 because 8 is greater than 3 .

What is the mistake?

Correct reasoning:

2. A student calculates $-5 + 9 = -14$.

What is the mistake?

Correct reasoning:

3. A student calculates $6 - (-4) = 2$.

What is the mistake?

Correct reasoning:

4. A student says $(-3) \times (-7) = -21$.

What is the mistake?

Correct reasoning:

5. A student says the 5 in $45,200$ has a value of $5,000$.

What is the mistake?

Correct reasoning:

Part A • Mental Maths

1. $-12 + 19 = ?$

2. $-20 - 5 = ?$

3. $7 - (-8) = ?$

4. $(-6) \times 7 = ?$

5. $(-54) \div (-9) = ?$

6. What is the value of 8 in 18,450?

7. Write 7,305 in expanded form.

8. Which is smaller: -15 or -9 ?

Part B • Logic Puzzle

Four temperatures are -8°C , -2°C , 3°C and 7°C . The first temperature rises by 5°C , the second falls by 4°C , the third falls by 6°C and the fourth falls by 10°C . What are the four new temperatures? Put them in order from coldest to warmest.

Part C • Exit Ticket

In one sentence, explain one real-life situation where negative numbers are useful.

Page 2

1. 7,000 • 2. 3,000 • 3. $6,000+200+5$ • 4. 4,329 • 5. 8,900 • 6. 6,700 • 7. 450 • 8. 8,250.

Page 3

1. 5,372 • 2. Eight thousand four hundred six • 3. $9,000+50$ • 4. 6 • 5. 6,000 • 6. Increase of 5,000. Puzzle: 6,478.

Page 4

1. $<$ • 2. $>$ • 3. -5, -1, 0, 2, 8 • 4. 5, 3, 0, -2, -8 • 5. 49,000 • 6. 5,600 • 7. 9,650 • 8. 4,500.

Page 5

1. -2 • 2. -9 • 3. -7 • 4. 12 • 5. 3 • 6. 9 • 7. 5 • 8. -7. Temperature: 5°C . Challenge: -8 and 8.

Page 6

1. 4 • 2. -3 • 3. -3 • 4. -10 • 5. -5 • 6. -9 • 7. 12 • 8. 1 • 9. 8 • 10. 0. Race: -4.

Page 7

1. -24 • 2. 21 • 3. -40 • 4. -6 • 5. 6 • 6. -7 • 7. 30 • 8. 12. Sign challenge: positive, negative, negative, positive.

Page 8

1. 5°C • 2. -11 m • 3. \$35 • 4. Floor 5 • 5. -700 m • 6. +18 points.

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Answers: 5, -8, 20, -6, 6, $7,649 \rightarrow 7,600$, 18, 12. Secret total = 7,692.

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1. -3 is greater; on a number line it is farther right. 2. $-5+9=4$. 3. $6-(-4)=10$. 4. $(-3)(-7)=21$. 5. The 5 is in the thousands place, so 5,000.

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Mental maths: 7, -25, 15, -42, 6, 8, $7,000+300+5$, -15. Logic: -3, -6, -3, -3; ordered -6, -3, -3, -3. Exit responses vary.

Teacher note

Use the quick-fire questions as warm-ups or exit tickets. Encourage students to use number lines and real-life contexts when introducing negative numbers, then gradually move toward mental strategies and formal integer rules.