Merit Tutoring

WORKSHEET 5

Year 6 Mathematics: Number & Patterns

Integers (Negative Numbers)

Focus: Introduction to Integers

Name: _____ **Date:** _____

What are Integers?

Integers are whole numbers that can be positive, negative, or zero.
Positive Integers: Numbers greater than zero (1, 2, 3, 4...)
Examples: 10 degrees above zero, earning $50, 200 metres above sea level
Zero: Neither positive nor negative (the reference point)
Negative Integers: Numbers less than zero (-1, -2, -3, -4...)
Examples: 5 degrees below zero, owing $20, 30 metres below sea level
Key Tip: We write negative numbers with a minus sign in front: -7, -15, -100

Section 1: Writing Integers (Fluency)

1. Write an integer for: A temperature of 5 degrees **below** zero.

Answer: _____

2. Write an integer for: A diver is 20 metres **below** sea level.

Answer: _____

3. Write an integer for: Winning $50.

Answer: _____

4. Write an integer for: Owing $12 to your friend.

Answer: _____

5. Write an integer for: An aeroplane flying 8000 metres above sea level.

Answer: _____

6. Write an integer for: The temperature is 3 degrees below freezing (0 degrees).

Answer: _____

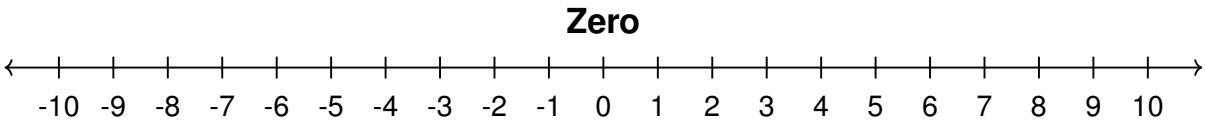
ICE COLD GENIUS!

Polar Bear

What do you call a snowman in summer?
A puddle! Just like zero on the number line!

Section 2: Number Line Location (Reasoning)

Reference Number Line:



7. On a number line, which direction do negative numbers go from zero? (Left or Right?)

Answer: _____

8. Mark the position of the number -4 on the number line. (Draw it on the line above)

Answer: Done on the number line above.

9. Which number is halfway between -2 and 2?

Answer: _____

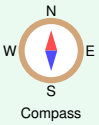
10. How many whole numbers are there between -5 and 5 (not including -5 and 5)?

Answer: _____

11. If you start at zero and move 6 spaces to the left on the number line, what number do you reach?

Answer: _____

NUMBER LINE NAVIGATOR!



Compass

Why did zero break up with eight?

Because eight was two-faced! (looks like infinity)

Section 3: Opposites & Zero (Challenge)

12. What is the opposite of -7? (The opposite is the same distance from zero, but on the other side)

Answer: _____

13. What is the opposite of 15?

Answer: _____

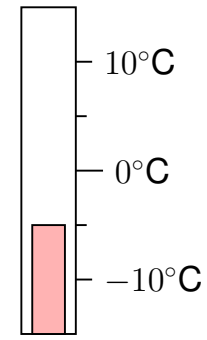
14. I am the only number that is neither positive nor negative. What number am I?

Answer: _____

15. True or False: The opposite of the opposite of -3 is -3.

Answer: _____

16. A thermometer shows temperatures. Use the diagram below:

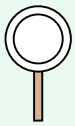


Thermometer

If the red liquid is at $-5°$C, is it above or below freezing (0 degrees)?

Answer: _____

INTEGER INVESTIGATOR!



Detective

Why did the integer go to therapy?

It had too many negative thoughts!

Fantastic Work! Check your answers on the next page.

ANSWER KEY

Worksheet 5: Introduction to Integers

Section 1: Writing Integers

1. -5 (5 degrees below zero is negative 5)
2. -20 (below sea level is negative)
3. $+50$ or 50 (winning money is positive)
4. -12 (owing money is negative)
5. $+8000$ or 8000 (above sea level is positive)
6. -3 (below freezing is negative)

Section 2: Number Line Location

7. Left (negative numbers are to the left of zero)
8. Students should mark -4 on the number line (4 units to the left of zero)
9. 0 (zero is exactly halfway between -2 and 2)
10. 9 numbers (they are: $-4, -3, -2, -1, 0, 1, 2, 3, 4$)
11. -6 (moving left means going to negative numbers)

Section 3: Opposites & Zero

12. 7 (the opposite of -7 is $+7$ or 7)
13. -15 (the opposite of positive 15 is negative 15)
14. 0 (zero is neither positive nor negative)
15. True (opposite of -3 is 3, opposite of 3 is -3)
16. Below freezing (any negative temperature is below zero)

WORKSHEET 6

Year 6 Mathematics: Number & Patterns

Integers (Negative Numbers)

Focus: Comparing and Ordering Integers

Name: _____ **Date:** _____

Comparing Integers

Key Rules for Comparing Integers:

1. **Positive numbers are always greater than negative numbers**
Example: $5 > -5$ (5 is greater than negative 5)
2. **Zero is greater than all negative numbers**
Example: $0 > -10$
3. **For negative numbers: the one closer to zero is greater**
Example: $-2 > -8$ (think temperature: $-2°$C is warmer than $-8°$C)
4. **On the number line: numbers to the right are always greater**
$-10 < -5 < 0 < 5 < 10$

Section 1: Greater Than or Less Than (Fluency)

1. Insert less than or greater than: -5 _____ -2
(Hint: Think about temperature, which is colder?)

Answer: _____

2. Insert less than or greater than: -1 _____ 0

Answer: _____

3. Insert less than or greater than: $3 \_\_\_\_\_ -10$

Answer: _____

4. Insert less than or greater than: $-20 \_\_\_\_\_ -15$

Answer: _____

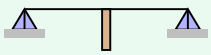
5. Which number is greater: -7 or -4?

Answer: _____

6. Which number is smaller: -1 or -100?

Answer: _____

COMPARISON CHAMPION!



Balance Scale

Why don't negative numbers ever win arguments?
Because they're always less than convincing!

Section 2: Ordering Integers (Reasoning)

7. Arrange these temperatures from **coldest to warmest**:
$3°$C, $-5°$C, $0°$C, $-12°$C

Answer: _____

8. Arrange these numbers from **smallest to largest**:
$-3,\ 7,\ -10,\ 0,\ 5$

Answer: _____

9. Arrange these elevations (heights) from **lowest to highest**:
50 m above sea level, 30 m below sea level, sea level, 15 m above sea level

Answer: _____

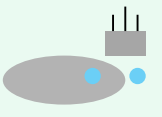
10. Circle the number that does NOT belong in this list (they should be in order):
$-15,\ -10,\ -8,\ -5,\ 0,\ 3$

Answer: _____

11. Write three integers that are between -5 and 0.

Answer: _____

ORDERING EXPERT!



What did the ocean say to the submarine?
Nothing, it just waved! (at negative depths!)

Section 3: Integer Word Problems (Challenge)

12. The temperature was $-3°$C. It dropped 4 degrees. What is the new temperature?
(Hint: Dropping means going down/more negative)

Answer: _____

13. A lift is on the basement level B2 (think of this as -2). It goes up 5 floors. What floor is it on now?

Answer: _____

14. A diver starts at sea level (0 metres). She dives down 15 metres, then comes up 8 metres. What is her position now? (Use positive for above, negative for below)

Answer: _____

15. Jack owes \$25 (this is -25). He pays back \$10. How much does he still owe? (Write as an integer)

Answer: _____

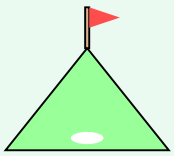
16. The temperature at midnight was $-8°$C. By midday it had risen 12 degrees. What was the temperature at midday?

Answer: _____

17. A car park has 3 levels below ground (B1, B2, B3) and 4 levels above ground (G, L1, L2, L3). If you start at B3 (think -3) and go up 5 levels, which level are you on?

Answer: _____

PROBLEM-SOLVING PRO!



Summit!

Why did the positive number break up with the negative number?

Because their relationship had no chemistry... too many opposites!

Brilliant Work! Check your answers on the next page.

ANSWER KEY

Worksheet 6: Comparing and Ordering Integers

Section 1: Greater Than or Less Than

1. Less than ($-5 < -2$) because -5 is colder/further left on number line
2. Less than ($-1 < 0$) because negative numbers are less than zero
3. Greater than ($3 > -10$) because positive numbers are greater than negative
4. Less than ($-20 < -15$) because -20 is further from zero
5. -4 is greater (closer to zero means greater for negatives)
6. -100 is smaller (further from zero means smaller)

Section 2: Ordering Integers

7. Coldest to warmest: $-12°$C, $-5°$C, $0°$C, $3°$C
8. Smallest to largest: -10, -3, 0, 5, 7
9. Lowest to highest: 30 m below sea level (-30), sea level (0), 15 m above (15), 50 m above (50)
10. All numbers are in correct ascending order, so NONE don't belong. (Accept: Students may say -8 is out of sequence if they expect -6 instead)
11. Any three of: -4, -3, -2, -1 (accept any valid combination)

Section 3: Integer Word Problems

12. $-7°$C (start at -3, drop 4 means $-3 - 4 = -7$)
13. Floor 3 or L3 (start at -2, up 5 means $-2 + 5 = 3$)
14. -7 metres (down 15 = -15, up 8 = $-15 + 8 = -7$, so 7 metres below sea level)
15. -15 or owes \$15 (owed -25, paid back 10, so $-25 + 10 = -15$)
16. $4°$C (start at -8, rise 12 means $-8 + 12 = 4$)
17. Level L2 (start at -3, up 5 means $-3 + 5 = 2$, which is L2)

Outstanding Achievement!

You've conquered Integers!
From negative depths to positive heights!