

GRADE 6 MATHEMATICS

Number System, Place Value & Number Sense

Complete Printable Worksheet Pack

1. Large Numbers & Place Value

2. Comparing, Ordering & Rounding

3. Number Lines & Integers

4. Number Properties & Reasoning

5. Squares, Cubes & Number Patterns

6. Number Sense Challenge

6 worksheets + separate answer keys • A4 print-ready

Worksheet 1: Large Numbers & Place Value

Extend your Grade 5 skills to larger numbers and deeper place-value reasoning

A. Place Value

1. Write the place value and value of the digit 7 in 5,742,381.

2. Write 8,406,015 in expanded form.

3. Write $6,000,000 + 300,000 + 5,000 + 70 + 4$ as a standard number.

4. Form the greatest 7-digit number using 2, 5, 0, 8, 1, 6 and 3 exactly once.

5. Form the smallest 7-digit number using the same digits exactly once.

B. Reasoning with Place Value

6. In 9,090,909, how many times greater is the value of the first 9 than the value of the last 9?

7. Change only the digit in the ten-thousands place of 4,628,315 to make the number 4,658,315. What was the change?

8. A number has 6 in the millions place, 4 in the hundred-thousands place, 0 in the thousands place, 8 in the hundreds place, 2 in the tens place and 9 in the ones place. Write it.

9. Write a number between 7,450,000 and 7,460,000 whose ten-thousands digit is 5 and thousands digit is 8.

Answer Key 1: Large Numbers & Place Value

Solutions

1. Hundred-thousands place; 700,000.
2. $8,000,000 + 400,000 + 6,000 + 10 + 5$.
3. 6,305,074.
4. 8,653,210.
5. 1,023,568.
6. 1,000,000 times greater.
7. Increase of 30,000.
8. 6,400,829.
9. Example: 7,458,000. Other answers satisfying the clues are possible.

Worksheet 2: Comparing, Ordering & Rounding

Use place value to justify comparisons and make sensible estimates

A. Compare & Order

1. Insert $>$, $<$ or $=$: 5,708,420 ___ 5,780,240.

2. Insert $>$, $<$ or $=$: 9,999,999 ___ 10,000,000.

3. Order from smallest to largest: 3,450,900; 3,405,990; 3,459,000; 3,409,500.

4. Which is closer to 7,500,000: 7,492,000 or 7,518,000? Explain.

B. Rounding

5. Round 6,748,251 to the nearest 10,000.

6. Round 6,748,251 to the nearest 100,000.

7. Round 98,649,500 to the nearest million.

8. A town has 2,948,620 people. Give a sensible estimate to the nearest hundred thousand.

9. Find a number that rounds to 4,700,000 to the nearest 100,000 but is greater than 4,650,000.

C. Estimate & Explain

10. A student says 4,982,300 rounded to the nearest million is 4,000,000. Is the student correct? Explain.

Answer Key 2: Comparing, Ordering & Rounding

Solutions

1. $<$
2. $<$
3. 3,405,990; 3,409,500; 3,450,900; 3,459,000.
4. 7,492,000; it is 8,000 away compared with 18,000.
5. 6,750,000.
6. 6,700,000.
7. 99,000,000.
8. 2,900,000.
9. Any number from 4,650,000 to 4,749,999; e.g. 4,680,000.
10. No. It rounds to 5,000,000.

Worksheet 3: Number Lines & Integers

Work confidently with positive and negative numbers

A. Integer Number Sense

1. Which is greater: -8 or -3 ? Explain using a number line.

2. Order from least to greatest: $4, -7, 0, -2, 9, -5$.

3. Find the distance between -6 and 5 on a number line.

4. A temperature changes from -4°C to 7°C . How many degrees does it increase?

5. An elevator is on floor -2 and moves up 9 floors. Which floor does it reach?

B. Calculate with Integers

6. $-7 + 12$

7. $5 - 13$

8. $-6 - 8$

9. $-4 + (-9)$

10. $18 - (-25)$

C. Real-Life Reasoning

11. At 6 a.m. the temperature was -3°C . By noon it had risen 11°C . In the evening it fell 7°C . What was the evening temperature?

Answer Key 3: Number Lines & Integers

Solutions

1. -3 .
2. $-7, -5, -2, 0, 4, 9$.
3. 11 units.
4. 11°C .
5. Floor 7.
6. 5.
7. -8 .
8. -14 .
9. -13 .
10. 43.
11. 1°C .

Worksheet 4: Number Properties & Reasoning

Use divisibility, factors and number properties to solve problems

A. Divisibility & Properties

1. Which of these are divisible by 3: 4,218; 5,426; 7,305; 9,112? Explain.

2. Is 48 divisible by both 6 and 8? Verify.

3. Find all factors of 36.

4. Write the first five multiples of 14 greater than 50.

5. A number is divisible by 2, 3 and 5. What is the smallest possible 3-digit number?

B. Reasoning

6. A number has exactly two factors. What type of number is it? Give three examples.

7. Is 1 prime? Explain.

8. Find a number between 40 and 60 that is divisible by 4 and 9.

9. A number is a multiple of 8 and 12 and is less than 100. Give all possible numbers.

10. True or false: If a number is divisible by 6, it must be divisible by 2 and 3. Explain.

Answer Key 4: Number Properties & Reasoning

Solutions

1. 4,218 and 7,305.
2. Yes: $48 \div 6 = 8$ and $48 \div 8 = 6$.
3. 1, 2, 3, 4, 6, 9, 12, 18, 36.
4. 56, 70, 84, 98, 112.
5. 120.
6. Prime; examples: 2, 3, 5.
7. No. 1 has only one factor.
8. 36 and 72.
9. 24, 48, 72, 96.
10. True.

Worksheet 5: Squares, Cubes & Number Patterns

Recognise powers and use patterns to reason efficiently

A. Square & Cube Numbers

1. Write the first ten square numbers.

2. Write the first six positive cube numbers.

3. Is 144 a square number? If yes, give its square root.

4. Is 216 a cube number? If yes, give its cube root.

5. Between which two consecutive square numbers does 70 lie?

B. Patterns

6. Complete: 2, 5, 10, 17, 26, __, __. Describe the rule.

7. Complete: 1, 8, 27, 64, __, __.

8. The square numbers are 1, 4, 9, 16, 25, ... What pattern do you notice in the differences?

9. A number is both a square and a cube. Give the smallest number greater than 1 with this property.

10. Challenge: Find a square number between 200 and 250.

Answer Key 5: Squares, Cubes & Number Patterns

Solutions

1. 1, 4, 9, 16, 25, 36, 49, 64, 81, 100.
2. 1, 8, 27, 64, 125, 216.
3. Yes; $\sqrt{144} = 12$.
4. Yes; $\sqrt[3]{216} = 6$.
5. Between 64 and 81.
6. 37, 50; add consecutive odd numbers.
7. 125, 216.
8. Differences are 3, 5, 7, 9; consecutive odd numbers.
9. 64 (8^2 and 4^3).
10. 225 (15^2).

Worksheet 6: Number Sense Challenge

Use estimation, reasoning and multiple clues. Show your thinking

Challenge Problems

1. Using the digits 0, 2, 4, 5, 7 and 9 exactly once, make the greatest 6-digit number divisible by 5.

2. A number rounds to 3,500,000 to the nearest 100,000. Give the smallest possible whole number and the greatest possible whole number.

3. Without calculating exactly, decide whether 498×51 is closer to 20,000 or 30,000. Explain.

4. Find the smallest number greater than 500 that leaves remainder 5 when divided by 18.

5. Three consecutive integers have a sum of 99. What are the integers?

6. A number is between 1,000 and 2,000, divisible by 9, and has 7 in the tens place. Give one possible answer.

7. Explain why 0 is an even number.

8. Find the smallest positive number that is both a multiple of 12 and a square number.

Answer Key 6: Number Sense Challenge

Solutions

1. 975,420.
2. Smallest: 3,450,000. Greatest: 3,549,999.
3. About 25,000, so it is closer to 30,000.
4. 509.
5. 32, 33 and 34.
6. Example: 1,017.
7. 0 is even because $0 \div 2 = 0$ with no remainder.
8. 144.