GRADE 7
Number System & Place Value

Complete Number Sense Practice Pack

6 Worksheets • Place Value • Integers • Factors • Powers • Reasoning

Worksheet 1 — Large Numbers & Place Value

Instructions: Show your working. Use place-value reasoning, divisibility rules and number properties where appropriate.

1. Write 7,405,018 in words.

2. Write “nine million, sixty-two thousand, four hundred and seven” in numerals.

3. What is the place value of 8 in 58,407,216?

4. What is the value of 6 in 36,215,904?

5. Write 42,708,305 in expanded form.

6. Write 9,000,000 + 400,000 + 30,000 + 600 + 5 in standard form.

7. In 73,581,492, which digit is in the ten-thousands place and what is its value?

8. A number has 8 in the millions place, 3 in the hundred-thousands place, 0 in the ten-thousands place, 0 in the thousands place, 7 in the hundreds place, 2 in the tens place and 5 in the ones place. Write the number.

Answer Key — Large Numbers & Place Value

1. Seven million, four hundred five thousand, eighteen.

2. 9,062,407.

3. 8,000,000.

4. 6,000,000.

5. 40,000,000 + 2,000,000 + 700,000 + 8,000 + 300 + 5.

6. 9,430,605.

7. 8; value 80,000.

8. 8,300,725.

Worksheet 2 — Comparing, Ordering & Rounding

Instructions: Show your working. Use place-value reasoning, divisibility rules and number properties where appropriate.

1. Insert >, < or =: 7,805,219 ___ 7,850,219.

2. Arrange smallest to largest: 4,305,120; 4,350,102; 4,035,210; 4,305,012.

3. Arrange greatest to smallest: 9,008,700; 9,080,070; 8,999,999; 9,080,700.

4. Round 8,746,291 to the nearest 10,000.

5. Round 52,498,750 to the nearest million.

6. A stadium holds 68,742 people. Estimate this to the nearest thousand.

7. Which is closer to 5,000,000: 4,962,000 or 5,041,000? Explain.

8. Find the smallest and largest 7-digit numbers that round to 4,500,000 to the nearest 100,000.

Answer Key — Comparing, Ordering & Rounding

1. <

2. 4,035,210; 4,305,012; 4,305,120; 4,350,102.

3. 9,080,700; 9,080,070; 9,008,700; 8,999,999.

4. 8,750,000.

5. 52,000,000.

6. 69,000.

7. 4,962,000; it is 38,000 away versus 41,000.

8. 4,450,000 and 4,549,999.

Worksheet 3 — Integers & Number Lines

Instructions: Show your working. Use place-value reasoning, divisibility rules and number properties where appropriate.

1. Order from least to greatest: –8, 3, –2, 0, 7, –5.

2. Which is greater: –14 or –9? Explain using a number-line idea.

3. Find the distance between –7 and 5.

4. Starting at –3, move 8 units right, then 5 units left. Where do you land?

5. A temperature is –6°C and rises 11°C. What is the new temperature?

6. A submarine is 85 m below sea level and rises 37 m. What is its new position?

7. Find the integer halfway between –12 and 6.

8. Write three integers greater than –4 but less than 2.

Answer Key — Integers & Number Lines

1. –8, –5, –2, 0, 3, 7.

2. –9.

3. 12 units.

4. 0.

5. 5°C.

6. –48 m.

7. –3.

8. Examples: –3, –1, 1.

Worksheet 4 — Factors, Multiples & Number Properties

Instructions: Show your working. Use place-value reasoning, divisibility rules and number properties where appropriate.

1. Find all factor pairs of 84.

2. Find the greatest common factor of 48 and 72.

3. Find the least common multiple of 18 and 24.

4. Is 1,437 divisible by 3? Show a test.

5. Find the smallest number greater than 500 divisible by both 12 and 15.

6. A number has exactly three positive factors. What form must it have? Give an example.

7. Find the prime factorisation of 360.

8. Two bells ring every 18 and 24 minutes. They ring together at 9:00 a.m. When next?

Answer Key — Factors, Multiples & Number Properties

1. (1,84), (2,42), (3,28), (4,21), (6,14), (7,12).

2. 24.

3. 72.

4. Yes; digit sum 15.

5. 540.

6. Square of a prime; e.g. 49.

7. $2^3 \times 3^2 \times 5$.

8. 10:12 a.m.

Worksheet 5 — Powers, Squares, Cubes & Number Sense

Instructions: Show your working. Use place-value reasoning, divisibility rules and number properties where appropriate.

1. Write $6 \times 6 \times 6 \times 6$ using an exponent.

2. Evaluate 3^5.

3. Find 12^2 and 7^3.

4. Which is greater: 2^8 or 4^4? Explain.

5. Find the missing exponent: $5^{\square} = 625$.

6. Find the square number between 80 and 100.

7. Find the smallest positive integer that is both a perfect square and a multiple of 12.

8. Explain why 10^6 is 1,000 times greater than 10^3.

Answer Key — Powers, Squares, Cubes & Number Sense

1. 6^4.

2. 243.

3. 144 and 343.

4. Equal: both are 256.

5. 4.

6. 81.

7. 144.

8. $10^6 \div 10^3 = 10^3 = 1{,}000$.

Worksheet 6 — Number Sense Challenge

Instructions: Show your working. Use place-value reasoning, divisibility rules and number properties where appropriate.

1. A six-digit number uses 2,4,5,7,8,9 once each. Can it be divisible by 3? Explain.

2. Can any arrangement of those same digits be divisible by 9? Explain.

3. A number rounds to 3,700,000 to the nearest 100,000. Give the smallest and largest possible whole numbers.

4. Find a number between 1,000 and 1,100 divisible by 8, 9 and 10.

5. Two consecutive multiples of 12 have sum 204. Find them.

6. A number has prime factorisation $2^2 \times 3 \times 5^2$. Find the number and its number of positive factors.

7. Find the smallest positive integer leaving remainder 2 when divided by 5 and remainder 3 when divided by 7.

8. A number has 7 in the hundred-thousands place, 4 in the thousands place and 9 in the ones place; all other digits are 0. Write it and round to the nearest ten-thousand.

Answer Key — Number Sense Challenge

1. No; digit sum is 35, not divisible by 3.

2. No; digit sum is 35, not divisible by 9.

3. 3,650,000 to 3,749,999.

4. 1,080.

5. 96 and 108.

6. 300; 18 positive factors.

7. 17.

8. 704,009; rounded = 700,000.