

Numberverse — Activity Book

A Spark & Anvil activity book — puzzles, questions, and fun from Numberverse.

Write in the book, circle your answers, and check the Answer Key at the back.

1. number-sense

Circle the correct answer

1. In the number 45,728, what is the value of the digit 5?
(A) 50,000 (B) 50 (C) 5,000 (D) 500
2. What is the value of the 7 in 372,150?
(A) 700 (B) 700,000 (C) 70,000 (D) 7,000
3. Which digit is in the hundred-thousands place of 5,831,046?
(A) 5 (B) 3 (C) 8 (D) 1
4. How many times greater is the value of the 6 in 6,300 compared to the 6 in 630?
(A) 100 times (B) 6 times (C) 10 times (D) 1,000 times
5. What number is represented by 4 ten-thousands + 3 hundreds + 7 ones?
(A) 4,307 (B) 40,307 (C) 40,370 (D) 43,007
6. Which statement about the number 880 is true?
(A) Both 8s have the same value (B) The 8 in the tens place is greater (C) The 8 in the hundreds place is 10 times the 8 in the tens place (D) The two 8s together equal 16

Write the answer

7. Write $600,000 + 50,000 + 2,000 + 400 + 30 + 9$ in standard form.
Answer: _____
8. The population of a town is 203,450. How many people is that rounded to the nearest ten-thousand?
Answer: _____
9. Ms. Chen collected 8,462 bottle caps. What is the value of the 4 in this number?
Answer: _____

10. Which of these numbers has a 9 in the ten-thousands place?

Answer: _____

Match each question to its answer

1. A school has 2,375 students. If 1,000 more students enroll, how many students are there in total? →

2. Amir writes $50,000 + 7,000 + 200 + 60 + 8$ in standard form. What number did he write? →

3. A factory produced 146,500 toys last year. What is this number rounded to the nearest thousand? →

4. A library has 312,875 books. If the library gets 10,000 more books, what is the new total? →

5. Maya says the 3 in 43,609 and the 3 in 130,000 have the same value. Is she correct? →

(A) No, the second 3 is worth 30,000 while the first is worth 3,000

(B) 147,000

(C) 3,375

(D) 322,875

(E) 57,268

2. number-sense

Circle the correct answer

11. What is the value of the 6 in 3.614?

(A) 6 hundredths or 0.06 (B) 6 tenths or 0.6 (C) 6 ones or 6 (D) 6 thousandths or 0.006

12. Which digit is in the hundredths place of 12.738?

(A) 2 (B) 3 (C) 7 (D) 8

13. How do you write 0.045 in words?

(A) Forty-five hundredths (B) Forty-five thousandths (C) Four hundred fifty thousandths (D) Four and five tenths

14. What is the value of the 9 in 0.291?

(A) 9 thousandths or 0.009 (B) 9 hundredths or 0.09 (C) 9 tenths or 0.9 (D) 9 ones or 9

15. How many times greater is 0.3 than 0.03?

(A) 3 times (B) 10 times (C) 0.3 times (D) 100 times

16. Which decimal is equivalent to the fraction $\frac{7}{100}$?

- (A) 0.007 (B) 0.07 (C) 7.0 (D) 0.7

Write the answer

17. Arrange in order from least to greatest: 0.52, 0.502, 0.5

Answer: _____

18. What is $0.4 + 0.08 + 0.003$ in standard decimal form?

Answer: _____

19. Which is greater: 0.09 or 0.1?

Answer: _____

20. Express 2.350 in expanded form using fractions.

Answer: _____

Match each question to its answer

1. A runner's time is 12.408 seconds. What does the 8 represent? →

2. A scientist measures 0.725 grams of a chemical. She needs exactly 10 times that amount. How much does she need? →

3. Kai has \$5.60 and spends \$2.35 at the bookstore. How much money does he have left? →

4. A package weighs 1.065 kg. Round this to the nearest tenth. →

5. Write the number that is 0.001 more than 4.999. →

- (A) \$3.25
(B) 7.25 grams
(C) 5.000 or 5
(D) 8 thousandths of a second
(E) 1.1 kg
-

3. operations

Circle the correct answer

21. What is $4,562 + 3,215$?

- (A) 7,787 (B) 7,767 (C) 7,777 (D) 7,677

22. What is $8,000 - 3,000$?

- (A) 11,000 (B) 6,000 (C) 4,000 (D) 5,000

23. What is $2,345 + 1,234$?
(A) 3,589 (B) 3,569 (C) 3,579 (D) 3,479
24. What is $6,291 - 4,150$?
(A) 2,041 (B) 2,151 (C) 2,141 (D) 2,241
25. What is $3,486 + 2,957$?
(A) 5,443 (B) 6,343 (C) 6,443 (D) 6,433
26. What is $5,003 - 2,687$?
(A) 3,316 (B) 2,326 (C) 2,316 (D) 2,416

Write the answer

27. What property does this show: $356 + 429 = 429 + 356$?
Answer: _____
28. What is $10,000 - 4,567$?
Answer: _____
29. Fill in the blank: $2,748 + \quad = 6,000$.
Answer: _____
30. Estimate $4,891 + 3,245$ by rounding each number to the nearest thousand.
Answer: _____

Match each question to its answer

1. A school collected 12,458 cans in October and 9,763 cans in November. How many cans total? →
2. A farmer had 50,000 apples. After selling 18,375 apples, how many remain? →
3. Three classes raised money: Room A raised \$1,275, Room B raised \$2,890, and Room C raised \$1,435. What is the total? →
4. The distance from Town A to Town B is 24,530 km. The distance from Town A to Town C is 16,875 km. How much farther is Town B? →
5. A movie theater sold 3,845 tickets on Saturday and 2,976 on Sunday. Use compensation to add: round 2,976 to 3,000 and adjust. →
- (A) 6,821
(B) 22,221
(C) 7,655 km
(D) 31,625
(E) \$5,600
-

4. operations

Circle the correct answer

31. What is 300×7 ?

- (A) 2,010 (B) 210 (C) 21,000 (D) 2,100

32. What is 40×50 ?

- (A) 2,500 (B) 200 (C) 2,000 (D) 20,000

33. What is 256×3 ?

- (A) 758 (B) 768 (C) 668 (D) 778

34. What is $1,205 \times 4$?

- (A) 4,820 (B) 4,620 (C) 4,920 (D) 4,800

35. Use the distributive property to find 6×48 . Show it as $6 \times (50 - 2)$.

- (A) 288 (B) 308 (C) 278 (D) 298

36. What does the partial product 240 represent in the multiplication 68×34 ?

- (A) 68×4 , since this is how the operation works with these particular numbers (B) 68×4 (ones digit of 34) minus adjustments — actually $8 \times 30 = 240$ (C) 34×8 , which is what you get when you apply the distributive property here (D) 68×30 , based on the standard mathematical approach for this type of problem

Write the answer

37. Which expression equals 23×15 ?

Answer: _____

38. What is 47×12 ?

Answer: _____

39. Estimate the product of 389×7 by rounding 389 to the nearest hundred.

Answer: _____

40. What is 85×36 ?

Answer: _____

Match each question to its answer

1. A baker makes 175 cupcakes each day. How many cupcakes does she make in 8 days? →

2. A school orders 24 boxes of markers. Each box contains 36 markers. How many markers total? →

3. A parking garage has 16 floors. Each floor holds 125 cars. How many cars fit in the garage? →

4. Tickets to a concert cost \$45 each. If 328 tickets were sold, what was the total revenue? →

5. A farmer plants 9 rows with 2,450 seeds in each row. How many seeds total? →

(A) \$14,760

(B) 864

(C) 2,000

(D) 22,050

(E) 1,400

5. operations

Circle the correct answer

41. What is $84 \div 7$?

(A) 14 (B) 13 (C) 12 (D) 11

42. What is $156 \div 6$?

(A) 27 (B) 25 (C) 26 (D) 24

43. What is $4,500 \div 9$?

(A) 5,000 (B) 50 (C) 450 (D) 500

44. What is the remainder when 29 is divided by 4?

(A) 3 (B) 2 (C) 1 (D) 0

45. What is $365 \div 5$?

(A) 73 (B) 75 (C) 74 (D) 72

46. What is $847 \div 3$?

(A) 283 (B) 281 R2 (C) 282 R1 (D) 282

Write the answer

47. Which equation can be used to check that $432 \div 8 = 54$?

Answer: _____

48. What is $1,296 \div 4$?

Answer: _____

49. Estimate $7,245 \div 8$ by using a compatible number.

Answer: _____

50. If the remainder in a division by 6 is 7, what can you conclude?

Answer: _____

Match each question to its answer

1. A teacher has 135 stickers to share equally among 8 students. How many stickers does each student get? →

2. A school bus holds 45 passengers. If 287 students need transport, how many buses are needed? →

3. A ribbon is 250 cm long. You cut pieces that are 8 cm each. How many complete pieces can you cut? →

4. A bakery packs 6 muffins per box. They baked 1,458 muffins. How many full boxes and how many leftover muffins? →

5. What is $5,607 \div 9$? →

(A) 16 stickers each with 7 left over

(B) 7 buses

(C) 623

(D) 31 pieces

(E) 243 boxes with 0 left over

6. number-sense

Circle the correct answer

51. Round 6,847 to the nearest hundred.

(A) 7,000 (B) 6,800 (C) 6,900 (D) 6,850

52. Round 34.56 to the nearest whole number.

(A) 34 (B) 35 (C) 34.6 (D) 36

53. Round 0.0849 to the nearest hundredth.

(A) 0.09 (B) 0.085 (C) 0.08 (D) 0.1

54. Round 2,450 to the nearest thousand.

(A) 2,400 (B) 3,000 (C) 2,000 (D) 2,500

55. Estimate $487 + 312$ by rounding each to the nearest hundred.

(A) 700 (B) 900 (C) 800 (D) 799

56. Use front-end estimation for $5,234 + 3,871$.

(A) About 9,100 (B) About 9,000 (C) About 8,000 (D) About 8,105

Write the answer

57. Estimate 63×48 by rounding both to the nearest ten.

Answer: _____

58. Use compatible numbers to estimate $7,235 \div 8$.

Answer: _____

59. Estimate 9.87×4.12 by rounding each to the nearest whole number.

Answer: _____

60. Which is the best estimate for 298×5 ?

Answer: _____

Match each question to its answer

1. A store charges \$12.95 per item. You buy 8 items. Estimate the total cost. →

2. Nadia drove 247 miles on Monday and 189 miles on Tuesday. About how many miles total? →

3. A stadium holds 42,500 people. Tickets cost \$37 each. Estimate the total revenue if the stadium is full. →

4. You have \$50 and want to buy items costing \$7.89, \$12.45, \$8.99, and \$15.50. Estimate whether you have enough. →

5. A factory produces 4,872 widgets per day. Estimate production for a 5-day work week. →

(A) About 25,000

(B) About $\$8 + \$12 + \$9 + \$16 = \$45$, so yes, likely enough

(C) About \$1,600,000

(D) About \$104

(E) About 440 miles

7. number-sense

Circle the correct answer

61. Which property does $7 + 9 = 9 + 7$ demonstrate?

(A) Associative property of addition (B) Identity property of addition (C) Distributive property (D) Commutative property of addition

62. What is the identity element for multiplication?

(A) There is no identity for multiplication (B) 1 (C) The number itself (D) 0

63. Which property does $(3 \times 5) \times 4 = 3 \times (5 \times 4)$ demonstrate?

(A) Associative property of multiplication (B) Distributive property (C) Identity property of multiplication (D) Commutative property of multiplication

64. What does the zero property of multiplication state?

(A) 0 is the identity element for multiplication (B) Any number plus 0 equals itself (C) 0 divided by any number is undefined (D) Any number multiplied by 0 equals 0

65. Evaluate: $3 + 4 \times 5$

(A) 17 (B) 23 (C) 35 (D) 60

66. Evaluate: $(8 + 2) \times (7 - 3)$

(A) 74 (B) 20 (C) 52 (D) 40

Write the answer

67. Which expression uses the distributive property to rewrite 8×47 ?

Answer: _____

68. Evaluate: $2^3 + 4 \times 3$

Answer: _____

69. Insert parentheses to make this true: $6 + 3 \times 2 = 18$

Answer: _____

70. Evaluate: $100 - 6 \times (3 + 2^2)$

Answer: _____

Match each question to its answer

1. A store sells notebooks for \$3 each and pens for \$2 each. Write and evaluate an expression for 5 notebooks and 8 pens. →

2. Use the distributive property to mentally calculate 7×103 . →

3. Evaluate: $48 \div 6 + 2 \times (9 - 5)$ →

4. Use the distributive property to factor: $36 + 24$. →

5. Simplify using properties: $25 \times 13 \times 4$ →

(A) $12 \times (3 + 2) = 12 \times 5 = 60$

(B) 16

(C) $5 \times 3 + 8 \times 2 = 31$

(D) 1,300

(E) 721

8. number-sense

Circle the correct answer

71. List all the factors of 12.

(A) 1, 2, 3, 4, 6, 12 (B) 2, 3, 4, 6 (C) 1, 2, 3, 4, 6, 8, 12 (D) 1, 2, 3, 6, 12

72. What are the first five multiples of 7?

(A) 0, 7, 14, 21, 28 (B) 7, 14, 21, 28, 36 (C) 1, 7, 14, 21, 28 (D) 7, 14, 21, 28, 35

73. Is 36 a multiple of 9?

(A) No, because $36 \div 9$ has a remainder (B) Yes, because $36 > 9$ (C) Yes, because $9 \times 4 = 36$ (D) No, because 9 is not a factor of 36

74. Which of these numbers is a factor of 48: 5, 7, 8, or 9?

(A) 8 (B) 7 (C) 9 (D) 5

75. Find all factor pairs of 24.

(A) 1×24 , 2×12 , 3×8 (B) 1×24 , 2×12 , 4×6 , 6×4 (C) 2×12 , 3×8 , 4×6 (D) 1×24 , 2×12 , 3×8 , 4×6

76. What is the least common multiple (LCM) of 4 and 6?

(A) 12 (B) 6 (C) 24 (D) 2

Write the answer

77. What is the greatest common factor (GCF) of 18 and 24?

Answer: _____

78. A number is divisible by both 3 and 4. What is the smallest such number greater than 0?

Answer: _____

79. Is 1 a factor of every number?

Answer: _____

80. Which divisibility rule helps you quickly determine if a number is divisible by 3?

Answer: _____

Match each question to its answer

1. A coach has 42 players to divide into equal teams with no one left out. What are the possible team sizes? →

2. Hot dogs come in packs of 8. Buns come in packs of 6. What is the least number of each you must buy to have equal amounts? →

3. Using divisibility rules, is 738 divisible by 6? →

4. What is the GCF of 36 and 60? →

5. A florist has 28 roses and 42 tulips. She wants to make identical bouquets using all

flowers. What is the maximum number of bouquets? →

- (A) 12
 - (B) Yes: it's even (divisible by 2) and $7+3+8=18$ is divisible by 3
 - (C) 24 of each (3 packs of hot dogs, 4 packs of buns)
 - (D) 1, 2, 3, 6, 7, 14, 21, or 42 players per team
 - (E) 14 bouquets (2 roses and 3 tulips each)
-

9. number-sense

Circle the correct answer

81. Which of the following is a prime number?

- (A) 25 (B) 27 (C) 21 (D) 23

82. What does it mean for a number to be composite?

- (A) It can only be divided by 1 (B) It has more than two factors (C) It is always an even number (D) It has exactly two factors

83. Which number is composite?

- (A) 61 (B) 59 (C) 53 (D) 51

84. Is the number 1 prime, composite, or neither?

- (A) Prime (B) Neither (C) Composite (D) Both prime and composite

85. What is the only even prime number?

- (A) There are no even primes (B) 0 (C) 2 (D) 4

86. Kenji says 39 is prime because it is odd. Is he correct, and why?

- (A) Yes, all odd numbers are prime (B) No, $39 = 3 \times 12$ (C) No, $39 = 3 \times 13$, so it is composite (D) Yes, because 39 is not divisible by 2

Write the answer

87. Why is 15 a composite number?

Answer: _____

88. Which pair of numbers are both prime?

Answer: _____

89. A teacher places 24 students into equal groups with more than 1 student per group and more than 1 group. Which grouping uses a prime number of students per group?

Answer: _____

90. Aisha writes the prime factorization of 30. Which is correct?

Answer: _____

Match each question to its answer

1. Use a factor tree to find the prime factorization of 36. →
2. What is the prime factorization of 60? →
3. A garden has 48 flowers arranged in equal rows. If each row must have a prime number of flowers, which row size works? →
4. Find the prime factorization of 90. →
5. Carlos says 57 is prime. Use divisibility rules to determine if he is correct. →

- (A) 2 flowers per row (24 rows)
 - (B) No, $57 = 3 \times 19$
 - (C) $2 \times 2 \times 3 \times 3$
 - (D) $2 \times 2 \times 3 \times 5$
 - (E) $2 \times 3 \times 3 \times 5$
-

10. number-sense

Circle the correct answer

91. Which integer is located 5 units to the left of 0 on a number line?
(A) 5 (B) -4 (C) -5 (D) 0
92. What is the opposite of -8?
(A) -16 (B) 0 (C) 8 (D) -8
93. Which symbol correctly compares -3 and -7?
(A) $-3 = -7$ (B) $-3 < -7$ (C) $-3 > -7$ (D) $-7 > -3$
94. What integer represents 200 feet below sea level?
(A) 200 (B) 0 (C) -20 (D) -200
95. Place the following integers in order from least to greatest: 4, -6, 0, -2, 3.
(A) 0, -2, -6, 3, 4 (B) -6, -2, 0, 3, 4 (C) 4, 3, 0, -2, -6 (D) -2, -6, 0, 3, 4
96. A submarine is at -150 meters. It rises 60 meters. What is its new depth?
(A) -150 meters (B) -210 meters (C) -90 meters (D) 60 meters

Write the answer

97. Which statement about negative numbers is true?

Answer: _____

98. On a coordinate plane, point A is at $(-3, 4)$. In which quadrant is point A located?

Answer: _____

99. The temperature at noon was 5 degrees Celsius. By midnight it dropped 12 degrees. What was the temperature at midnight?

Answer: _____

100. Which integer is exactly halfway between -4 and 6 on a number line?

Answer: _____

Match each question to its answer

1. A hiker starts at an elevation of -40 feet (below sea level) and climbs to 125 feet above sea level. How many feet did the hiker climb? →

2. A bank account has a balance of $-\$35$. A deposit of $\$50$ is made. What is the new balance? →

3. Plot the points $(-2, -3)$, $(4, -3)$, and $(4, 2)$ on a coordinate plane. What is the length of the side from $(-2, -3)$ to $(4, -3)$? →

4. An elevator starts at floor -2 (basement level 2). It goes up 5 floors, then down 3 floors. What floor is it on now? →

5. Points $P(-5, 0)$ and $Q(3, 0)$ are on the x-axis. What is the distance between them? →

(A) 8 units

(B) $\$15$

(C) 6 units

(D) 165 feet

(E) Floor 0 (ground level)

11. operations

Circle the correct answer

101. What is $-8 + 3$?

(A) 11 (B) -11 (C) 5 (D) -5

102. What is $-6 \times (-4)$?

(A) -10 (B) -24 (C) 10 (D) 24

103. What is $5 - (-7)$?

(A) 12 (B) -12 (C) -2 (D) 2

104. What is $-42 \div 7$?

- (A) -6 (B) 6 (C) -7 (D) 7

105. At dawn the temperature was -9 degrees F. By noon it had risen 22 degrees. What was the noon temperature?

- (A) -31 degrees F (B) 13 degrees F (C) 31 degrees F (D) -13 degrees F

106. Which expression is equivalent to $-3 - 5$?

- (A) $3 - 5$ (B) $-3 + (-5)$ (C) $3 + 5$ (D) $-3 + 5$

Write the answer

107. Jamal owes \$15 to one friend and \$22 to another. If he earns \$30, what is his net financial position?

Answer: _____

108. What is the sign of the product $(-2) \times 3 \times (-5)$?

Answer: _____

109. A stock loses \$4 per share each day for 5 consecutive days. What is the total change in value per share?

Answer: _____

110. Which property does this equation demonstrate: $-7 + 7 = 0$?

Answer: _____

Match each question to its answer

1. Calculate: $-12 + (-8) - (-5)$. →

2. Evaluate: $(-3)^3$. →

3. A deep-sea research vessel descends 45 meters every 3 minutes. Express the rate of descent as a unit rate. →

4. Simplify: $4 \times (-6) + (-2) \times (-9)$. →

5. Calculate: $(-48) \div (-8) + (-3) \times 2$. →

(A) -15 meters per minute

(B) -27

(C) 0

(D) -6

(E) -15

12. number-sense

Circle the correct answer

111. What is the absolute value of -9?

- (A) 9 (B) -9 (C) 1 (D) 0

112. What is $|0|$?

- (A) 0 (B) -1 (C) 1 (D) Undefined

113. True or false: The absolute value of any number is always positive.

- (A) True; absolute value is always positive (B) False; absolute value is always non-negative ($|0| = 0$, which is not positive) (C) True; except for negative numbers (D) False; absolute value can be negative

114. Which symbol makes this statement true: $|-12|$ ____ $|8|$?

- (A) $>$ (B) Cannot compare absolute values (C) $=$ (D) $<$

115. Explain what $|-5| = 5$ means in terms of a number line.

- (A) -5 is 5 units away from 0 on the number line (B) -5 is greater than 5 (C) -5 equals 5 (D) -5 is to the right of 5 on the number line

116. Two numbers have the same absolute value: $|a| = |b| = 7$. The numbers are different. What could a and b be?

- (A) $a = 7$ and $b = 7$ (B) $a = 0$ and $b = 7$ (C) $a = 7$ and $b = -7$ (D) $a = 14$ and $b = -14$

Write the answer

117. Which number is farther from 0 on a number line: -15 or 11?

Answer: _____

118. Order the following from least to greatest: -4, $|3|$, $-|-6|$, $|0|$.

Answer: _____

119. A thermometer reads -18 degrees F. Another reads -7 degrees F. Which location is colder, and by how many degrees?

Answer: _____

120. If $|x| = 4$, what are the possible values of x?

Answer: _____

Match each question to its answer

1. A diver is at -35 feet and another diver is at -12 feet. What is the distance between them? →

2. Evaluate: $|7 - 15|$. →

3. A weather station records high and low temperatures. Monday's high was 8 degrees

C and low was -6 degrees C. What is the temperature range (difference between high and low)? $\rightarrow$

4. Arrange these numbers from greatest to least: $|-3|$, -5 , $|2|$, $-|-4|$, 1 . $\rightarrow$

5. Evaluate: $|-3| + |5| - |-2|$. $\rightarrow$

(A) $|-3|$, $|2|$, 1 , $-|-4|$, -5 which is 3 , 2 , 1 , -4 , -5

(B) 8

(C) 6

(D) 23 feet

(E) 14 degrees

13. Fractions Fundamentals

Circle the correct answer

121. What fraction of a pizza is shaded if 3 out of 8 equal slices are shaded?

(A) $\frac{3}{8}$ (B) $\frac{8}{3}$ (C) $\frac{3}{5}$ (D) $\frac{5}{8}$

122. What is the numerator in the fraction $\frac{5}{12}$?

(A) 5 (B) 12 (C) 17 (D) 7

123. Which fraction is equivalent to $\frac{1}{2}$?

(A) $\frac{3}{6}$ (B) $\frac{2}{5}$ (C) $\frac{1}{3}$ (D) $\frac{2}{6}$

124. What is $\frac{4}{8}$ in simplest form?

(A) $\frac{4}{2}$ (B) $\frac{2}{8}$ (C) $\frac{1}{2}$ (D) $\frac{2}{4}$

125. Which symbol makes this true: $\frac{2}{5}$ ____ $\frac{3}{5}$?

(A) $>$ (B) Cannot tell (C) $<$ (D) $=$

126. What is the denominator in the fraction $\frac{7}{10}$?

(A) 3 (B) 7 (C) 17 (D) 10

Write the answer

127. If you eat 2 slices of a pizza cut into 6 equal slices, what fraction is left?

Answer: _____

128. Which fraction is NOT equivalent to $\frac{2}{3}$?

Answer: _____

129. Convert the improper fraction $\frac{7}{4}$ to a mixed number.

Answer: _____

130. Convert the mixed number $2\frac{1}{3}$ to an improper fraction.

Answer: _____

Match each question to its answer

1. What fraction of 1 hour is 15 minutes? →
 2. Place the fraction $\frac{3}{4}$ on a number line. Between which two whole numbers does it fall? →
 3. A recipe calls for $\frac{3}{4}$ cup of flour. You only have a $\frac{1}{4}$ cup measuring cup. How many scoops do you need? →
 4. Order from least to greatest: $\frac{1}{2}$, $\frac{1}{4}$, $\frac{3}{4}$. →
 5. Why are $\frac{2}{4}$ and $\frac{1}{2}$ called equivalent fractions? →
- (A) $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$
(B) 0 and 1
(C) They represent the same amount
(D) $\frac{1}{4}$
(E) 3 scoops
-

14. Fraction Operations

Circle the correct answer

131. What is $\frac{1}{4} + \frac{1}{4}$?

(A) $\frac{1}{4}$, which is what you get when you apply the distributive property here (B) $\frac{1}{8}$, based on the standard mathematical approach for this type of problem (C) $\frac{2}{4}$ or $\frac{1}{2}$ (D) $\frac{2}{8}$, according to the standard procedure for solving this kind of equation

132. What is the first step when adding $\frac{1}{3} + \frac{1}{6}$?

(A) Add the numerators (B) Multiply the fractions (C) Find a common denominator (D) Add the denominators

133. What is $\frac{3}{5} + \frac{1}{5}$?

(A) $\frac{4}{5}$ (B) $\frac{4}{10}$ (C) $\frac{2}{5}$ (D) $\frac{3}{25}$

134. What is $\frac{7}{8} - \frac{3}{8}$?

(A) $\frac{4}{16}$ (B) $\frac{4}{8}$ or $\frac{1}{2}$ (C) $\frac{10}{8}$ (D) $\frac{3}{8}$

135. What is $\frac{2}{3}$ times $\frac{4}{5}$?

(A) $\frac{6}{8}$ (B) $\frac{8}{5}$ (C) $\frac{6}{15}$ (D) $\frac{8}{15}$

136. What is $\frac{1}{2}$ divided by 3?

(A) $\frac{2}{3}$ (B) $\frac{3}{2}$ (C) $\frac{1}{6}$ (D) $\frac{1}{3}$

Write the answer

137. Explain why you need a common denominator to add fractions.

Answer: _____

138. What is $\frac{1}{3} + \frac{1}{4}$?

Answer: _____

139. Why does multiplying fractions NOT require a common denominator?

Answer: _____

140. What is $\frac{2}{3} + \frac{5}{6}$?

Answer: _____

Match each question to its answer

1. A recipe needs $\frac{2}{3}$ cup of sugar. You want to make half the recipe. How much sugar do you need? →

2. You jogged $\frac{3}{4}$ mile in the morning and $\frac{1}{2}$ mile in the afternoon. How far did you jog in total? →

3. What is $3\frac{1}{2} + 2\frac{1}{4}$? →

4. What is $\frac{5}{6} - \frac{1}{3}$? →

5. A board is $\frac{5}{8}$ foot long. You cut off $\frac{1}{4}$ foot. How long is the remaining piece? →

(A) $\frac{3}{8}$ foot

(B) $\frac{1}{3}$ cup

(C) $1\frac{1}{4}$ miles

(D) $\frac{1}{2}$

(E) $5\frac{3}{4}$

15. Ratios and Proportions

Circle the correct answer

141. What is the ratio of 3 cats to 5 dogs?

(A) 3:5 (B) $\frac{3}{5}$ (C) 8:1 (D) 5:3

142. In a bag with 4 red marbles and 6 blue marbles, what is the ratio of red to total?

(A) 4:10 or 2:5 (B) 6:4, since this is how the operation works with these particular numbers (C) 4:6, according to the standard procedure for solving this kind of equation (D) 6:10, which is what you get when you apply the distributive property here

143. What is a unit rate?

- (A) A fraction less than 1 (B) A rate with a denominator of 1 (C) A rate that equals 1
(D) Any ratio of two numbers

144. If 5 pencils cost \$2.50, what is the cost per pencil?

- (A) \$1.00 (B) \$0.75 (C) \$0.50 (D) \$0.25

145. Simplify the ratio 12:8.

- (A) 12:8 (B) 4:2 (C) 6:4 (D) 3:2

146. What does it mean for two ratios to be proportional?

- (A) They add up to the same total (B) They have the same numerator (C) They are both fractions (D) They are equivalent ratios that represent the same relationship

Write the answer

147. Explain why the ratio 3:4 is different from the ratio 4:3.

Answer: _____

148. A map scale is 1 inch = 50 miles. Two cities are 3.5 inches apart on the map. How far apart are they in real life?

Answer: _____

149. Are these ratios proportional? 6:9 and 10:15

Answer: _____

150. A car travels 240 miles on 8 gallons of gas. What is the fuel efficiency in miles per gallon?

Answer: _____

Match each question to its answer

1. A recipe for 4 servings uses 2 cups of rice. How much rice is needed for 10 servings?

→

2. If 3 notebooks cost \$4.50, how much do 7 notebooks cost? →

3. A scale model is 1:24. If the model car is 7 inches long, how long is the real car? →

4. Solve the proportion: $4/x = 12/15$. →

5. At a school, the ratio of students to teachers is 22:1. If there are 5 teachers, how many students are there? →

- (A) $x = 5$
(B) 110 students
(C) \$10.50
(D) 5 cups
(E) 168 inches or 14 feet
-

16. Algebraic Thinking and Expressions

Circle the correct answer

151. What is a variable in mathematics?

(A) A letter or symbol that represents an unknown number (B) A number that never changes (C) A type of equation (D) The answer to a problem

152. In the expression $3x + 5$, what is the coefficient of x ?

(A) x (B) 8 (C) 5 (D) 3

153. What is a constant in the expression $4n + 7$?

(A) 7 (B) $4n$ (C) 4 (D) n

154. Evaluate the expression $2x + 3$ when $x = 4$.

(A) 14 (B) 8 (C) 11 (D) 9

155. Write an algebraic expression for: five more than a number n .

(A) $n - 5$ (B) $5n$ (C) $n + 5$ (D) $5 - n$

156. What is a term in the expression $6y - 2 + y$?

(A) Only the variables, and this is the standard approach used in most cases (B) Only the numbers, and this has been consistently demonstrated in practice (C) The entire expression, as this directly follows from the underlying principles (D) A single number, variable, or product of numbers and variables separated by $+$ or $-$

Write the answer

157. Explain the difference between an expression and an equation.

Answer: _____

158. Simplify: $4x + 3x$.

Answer: _____

159. What does it mean to "solve" an equation?

Answer: _____

160. Solve: $x + 7 = 12$.

Answer: _____

Match each question to its answer

1. Solve: $3n = 18$. →
2. Solve: $y - 9 = 15$. →
3. Solve: $x / 4 = 7$. →
4. Write an expression for the perimeter of a rectangle with length L and width W . →
5. A gym charges a membership fee plus per visit. Write an expression for the total cost of v visits. →

- (A) $2L + 2W$ or $2(L + W)$
 - (B) $n = 6$
 - (C) $x = 28$
 - (D) $y = 24$
 - (E) $25 + 10v$
-
-

Answer Key

1. C — 5,000
2. C — 70,000
3. C — 8
4. C — 10 times
5. B — 40,307
6. C — The 8 in the hundreds place is 10 times the 8 in the tens place
7. 652,439
8. 200,000
9. 400
10. 194,320
Matching (number-sense): $1 \rightarrow C$, $2 \rightarrow E$, $3 \rightarrow B$, $4 \rightarrow D$, $5 \rightarrow A$
11. B — 6 tenths or 0.6
12. B — 3
13. B — Forty-five thousandths
14. B — 9 hundredths or 0.09
15. B — 10 times
16. B — 0.07

17. 0.5, 0.502, 0.52

18. 0.483

19. 0.1 is greater

20. $2 + \frac{3}{10} + \frac{5}{100}$

Matching (number-sense): $1 \rightarrow D$, $2 \rightarrow B$, $3 \rightarrow A$, $4 \rightarrow E$, $5 \rightarrow C$

21. C — 7,777

22. D — 5,000

23. C — 3,579

24. C — 2,141

25. C — 6,443

26. C — 2,316

27. Commutative property of addition

28. 5,433

29. 3,252

30. 8,000

Matching (operations): $1 \rightarrow B$, $2 \rightarrow D$, $3 \rightarrow E$, $4 \rightarrow C$, $5 \rightarrow A$

31. D — 2,100

32. C — 2,000

33. B — 768

34. A — 4,820

35. A — 288

36. B — 68×4 (ones digit of 34) minus adjustments — actually $8 \times 30 = 240$

37. $(20 \times 15) + (3 \times 15)$

38. 564

39. 2,800

40. 3,060

Matching (operations): $1 \rightarrow E$, $2 \rightarrow B$, $3 \rightarrow C$, $4 \rightarrow A$, $5 \rightarrow D$

41. C — 12

42. C — 26
43. D — 500
44. C — 1
45. A — 73
46. C — 282 R1
47. $8 \times 54 = 432$
48. 324
49. About 900
50. An error was made; the remainder must be less than the divisor (less than 6)
Matching (operations): $1 \rightarrow A$, $2 \rightarrow B$, $3 \rightarrow D$, $4 \rightarrow E$, $5 \rightarrow C$
51. B — 6,800
52. B — 35
53. C — 0.08
54. C — 2,000
55. C — 800
56. C — About 8,000
57. 3,000
58. About 900
59. About 40
60. 1,500
Matching (number-sense): $1 \rightarrow D$, $2 \rightarrow E$, $3 \rightarrow C$, $4 \rightarrow B$, $5 \rightarrow A$
61. D — Commutative property of addition
62. B — 1
63. A — Associative property of multiplication
64. D — Any number multiplied by 0 equals 0
65. B — 23
66. D — 40
67. $8 \times 40 + 8 \times 7$

68. 20

69. $(6 + 3) \times 2 = 18$

70. 58

Matching (number-sense): $1 \rightarrow C, 2 \rightarrow E, 3 \rightarrow B, 4 \rightarrow A, 5 \rightarrow D$

71. A — 1, 2, 3, 4, 6, 12

72. D — 7, 14, 21, 28, 35

73. C — Yes, because $9 \times 4 = 36$

74. A — 8

75. D — $1 \times 24, 2 \times 12, 3 \times 8, 4 \times 6$

76. A — 12

77. 6

78. 12

79. Yes, because every number divided by 1 equals itself with no remainder

80. Add the digits; if the sum is divisible by 3, the number is too

Matching (number-sense): $1 \rightarrow D, 2 \rightarrow C, 3 \rightarrow B, 4 \rightarrow A, 5 \rightarrow E$

81. D — 23

82. B — It has more than two factors

83. D — 51

84. B — Neither

85. C — 2

86. C — No, $39 = 3 \times 13$, so it is composite

87. Because 15 has factors 1, 3, 5, and 15

88. 11 and 37

89. 3 students per group (8 groups)

90. $2 \times 3 \times 5$

Matching (number-sense): $1 \rightarrow C, 2 \rightarrow D, 3 \rightarrow A, 4 \rightarrow E, 5 \rightarrow B$

91. C — -5

92. C — 8

93. C — $-3 > -7$
94. D — -200
95. B — -6, -2, 0, 3, 4
96. C — -90 meters
97. Every negative number is less than every positive number
98. Quadrant II
99. -7 degrees Celsius
100. 1
Matching (number-sense): $1 \rightarrow D$, $2 \rightarrow B$, $3 \rightarrow C$, $4 \rightarrow E$, $5 \rightarrow A$
101. D — -5
102. D — 24
103. A — 12
104. A — -6
105. B — 13 degrees F
106. B — $-3 + (-5)$
107. -\$7 (still owes \$7)
108. Positive, because there are two negative factors
109. -\$20
110. Additive inverse property
Matching (operations): $1 \rightarrow E$, $2 \rightarrow B$, $3 \rightarrow A$, $4 \rightarrow D$, $5 \rightarrow C$
111. A — 9
112. A — 0
113. B — False; absolute value is always non-negative ($|0| = 0$, which is not positive)
114. A — $>$
115. A — -5 is 5 units away from 0 on the number line
116. C — $a = 7$ and $b = -7$
117. -15, because $|-15| = 15 > |11| = 11$
118. $-|-6|$, -4, $|0|$, $|3|$ which is -6, -4, 0, 3

119. -18 degrees F is colder; the difference is 11 degrees

120. $x = 4$ or $x = -4$

Matching (number-sense): $1 \rightarrow D$, $2 \rightarrow B$, $3 \rightarrow E$, $4 \rightarrow A$, $5 \rightarrow C$

121. $A - 3/8$

122. $A - 5$

123. $A - 3/6$

124. $C - 1/2$

125. $C - <$

126. $D - 10$

127. $4/6$

128. $4/9$

129. $1 \frac{3}{4}$

130. $7/3$

Matching (Fractions Fundamentals): $1 \rightarrow D$, $2 \rightarrow B$, $3 \rightarrow E$, $4 \rightarrow A$, $5 \rightarrow C$

131. $C - 2/4$ or $1/2$

132. $C -$ Find a common denominator

133. $A - 4/5$

134. $B - 4/8$ or $1/2$

135. $D - 8/15$

136. $C - 1/6$

137. You can only add pieces that are the same size

138. $7/12$

139. Multiplication counts parts of parts, not combining same-sized pieces

140. $1 \frac{1}{2}$ or $3/2$

Matching (Fraction Operations): $1 \rightarrow B$, $2 \rightarrow C$, $3 \rightarrow E$, $4 \rightarrow D$, $5 \rightarrow A$

141. $A - 3:5$

142. $A - 4:10$ or $2:5$

143. $B -$ A rate with a denominator of 1

144. C — \$0.50
145. D — 3:2
146. D — They are equivalent ratios that represent the same relationship
147. Order matters in ratios; 3:4 means 3 of the first for every 4 of the second
148. 175 miles
149. Yes, both simplify to 2:3
150. 30 miles per gallon
Matching (Ratios and Proportions): 1→D, 2→C, 3→E, 4→A, 5→B
151. A — A letter or symbol that represents an unknown number
152. D — 3
153. A — 7
154. C — 11
155. C — $n + 5$
156. D — A single number, variable, or product of numbers and variables separated by + or -
157. An expression has no equals sign; an equation states two expressions are equal
158. $7x$
159. Find the value of the variable that makes the equation true
160. $x = 5$
Matching (Algebraic Thinking and Expressions): 1→B, 2→D, 3→C, 4→A, 5→E
-

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