

NYS Grade 7 to Grade 8 Math Summer Work Packet

Part A: Rational Numbers

1. Evaluate:

- a. $-8 + 15 = \underline{\hspace{2cm}}$
- b. $-12 - 7 = \underline{\hspace{2cm}}$
- c. $(-4)(-9) = \underline{\hspace{2cm}}$
- d. $56 \div (-8) = \underline{\hspace{2cm}}$
- e. $-14 + (-6) = \underline{\hspace{2cm}}$

2. Order from least to greatest:

- $-3, 5, -8, 1, -1$

Part B: Fractions, Decimals, and Percents

3. Convert:

- a. $0.75 = \underline{\hspace{2cm}}\%$
- b. $40\% = \underline{\hspace{2cm}}$ decimal
- c. $\frac{3}{5} = \underline{\hspace{2cm}}\%$
- d. $125\% = \underline{\hspace{2cm}}$ decimal
- e. $0.08 = \underline{\hspace{2cm}}\%$

4. Find:

- a. 25% of 80
- b. 15% of 200
- c. 30% of 90

Part C: Proportional Relationships

5. Determine whether the table represents a proportional relationship:

- $(2,6), (4,12), (6,18), (8,24)$

6. Find the constant of proportionality:

- $(3,15), (5,25), (7,35)$

Part D: Equations

7. Solve:

- a. $x + 12 = 31$
- b. $3x = 42$
- c. $4x - 7 = 21$
- d. $2(x + 5) = 18$
- e. $5x + 8 = 3x + 20$

Part E: Inequalities

8. Solve and graph:

- a. $x + 4 > 10$
- b. $3x \leq 18$
- c. $2x - 5 > 7$

Part F: Geometry

9. Area of rectangle: length 12 cm, width 8 cm
10. Volume of rectangular prism: length 5 cm, width 4 cm, height 3 cm
11. Circumference with radius 7 cm ($\pi \approx 3.14$)

Part G: Probability

12. A bag contains 4 red, 3 blue, and 5 green marbles. Find $P(\text{red})$, $P(\text{blue})$, and $P(\text{green})$.

Part H: Coordinate Plane

13. Plot and identify the quadrant:
A(3,4), B(-2,5), C(-4,-3), D(5,-2)

Part I: Functions

14. Complete the table for $y = 2x + 3$ when $x = 1, 2, 3, 4$.
15. Is the relation a function?
(1,5), (2,7), (3,9), (1,8)

Challenge Problems

16. A \$24 shirt is 25% off.
17. Ratio boys:girls = 3:4. If there are 24 girls, how many boys?
18. Solve: $3(2x - 4) + 5 = 17$
19. Area of triangle with base 10 cm and height 8 cm.
20. A car travels 180 miles in 3 hours. Find the unit rate.

NYS 7th grade going into 8th grade math summer work packet

NYS Grade 7 → Grade 8 Math Summer Work Packet

This packet reviews key New York State Grade 7 standards and prepares students for Grade 8 mathematics.

Student Name: _____

Grade 8 Math Summer Review Packet

- Simplify answers when possible.
- Use a calculator only when instructed.
- Complete all sections before the first week of school.

Circle your answer

Part 1: Integer Operations

Solve.

1. $-8 + 15 =$ _____
2. $12 - 19 =$ _____
3. $(-6)(-7) =$ _____
4. $(-45) \div 9 =$ _____
5. $-14 + (-9) =$ _____
6. $18 - (-4) =$ _____
7. $(-3)(12) =$ _____
8. $56 \div (-8) =$ _____
9. $(-5)(-11) =$ _____
10. $-24 + 13 =$ _____

Part 2: Rational Numbers

Convert.

11. $0.25 = \underline{\hspace{1cm}}$ %
12. $75\% = \underline{\hspace{1cm}}$ decimal
13. $\frac{3}{4} = \underline{\hspace{1cm}}$ decimal
14. $0.8 = \underline{\hspace{1cm}}$ %
15. $45\% = \underline{\hspace{1cm}}$ fraction

Order Least to Greatest.

16. $0.4, 40\%, \frac{1}{2}$

17. $0.75, 70\%, \frac{3}{5}$

Part 3: Expressions

Evaluate.

18. $3x + 7$ when $x = 4$
19. $2a - 5$ when $a = 9$
20. $5n + 2$ when $n = -3$
21. $4(y - 2)$ when $y = 8$
22. $2m + 3m$ when $m = 6$

Part 4: One-Step Equations

Solve.

23. $x + 8 = 17$
24. $n - 12 = 9$
25. $4y = 32$
26. $a \div 6 = 7$
27. $x - 15 = -3$

Part 5: Two-Step Equations

28. $2x + 5 = 19$

29. $3y - 7 = 20$

30. $5a + 10 = 45$

31. $4m - 12 = 20$

32. $2(n + 4) = 18$

Part 6: Ratios and Proportions

33. A recipe uses 2 cups of flour for 3 cups of sugar. Write the ratio of flour to sugar.

34. Solve:

$$\frac{4}{5} = \frac{x}{20}$$

35. Solve:

$$\frac{7}{9} = \frac{21}{n}$$

36. A car travels 180 miles in 3 hours. What is the unit rate?

37. If 5 notebooks cost \$12.50, what is the cost per notebook?

Part 7: Percent Problems

38. Find 20% of 80.

39. Find 15% of 60.

40. A shirt costs \$40 and is on sale for 25% off. What is the discount?

41. A \$50 item has 8% sales tax. How much is the tax?

42. What percent of 50 is 20?

Part 8: Geometry

43. Find the area of a rectangle with length 12 cm and width 5 cm.
44. Find the circumference of a circle with radius 7 cm. Use $\pi = 3.14$.
45. Find the area of a circle with radius 4 cm.
46. Find the volume of a rectangular prism:
Length = 6 cm
Width = 4 cm
Height = 5 cm
47. Find the area of a triangle:
Base = 10 cm
Height = 8 cm

Part 9: Probability

48. A bag contains 5 red marbles and 3 blue marbles.
What is the probability of drawing a blue marble?
49. A coin is flipped once.
What is the probability of heads?
50. A number cube is rolled.
What is the probability of rolling a 5?

Part 10: Introduction to Grade 8 Skills

Simplify.

51. $3(x + 4)$
52. $-2(y - 5)$
53. $5a + 2a - 3$
54. $7m - 4m + 9$

Solve.

55. $3x + 7 = 22$
56. $4(x - 2) = 16$
57. $2x + 5 = x + 13$
58. $5y - 8 = 2y + 13$