



Incoming 8th Grade Summer Math Packet

St. Joseph Academy

Student Name: _____

Instructions: Complete each section over the summer. **Show all your work clearly.** Use scrap paper as needed. This packet reviews essential 7th-grade skills and previews 8th-grade concepts based on the NJ Standards.



Skills Covered (Aligned to NJSLs)

- Ratios & Proportional Relationships (7.RP)
- Operations with Rational Numbers (7.NS, 8.NS)
- Expressions & Equations (7.EE, 8.EE)
- Geometry Review & Introduction (7.G, 8.G)
- Statistics & Probability (7.SP)



Section 1: Ratios & Proportions

1. Simplify the ratio 18:24.
2. A map scale is 1 inch = 50 miles. How many miles does 3.5 inches represent?
3. A recipe uses 4 cups of flour for every 6 cups of sugar. How much sugar is needed for 10 cups of flour?
4. A car travels 180 miles in 3 hours. What is the unit rate in miles per hour?
5. If 5 notebooks cost \$12.50, how much would 8 notebooks cost at the same rate?



Section 2: Operations with Rational Numbers

6. Add: $-7.25 + 3.4$
7. Subtract: $\frac{2}{3} - \frac{5}{6}$
8. Multiply: -3.5×2

9. Divide: $-12 \div \frac{3}{4}$
10. Is $\sqrt{64}$ a rational number? Explain.
11. Add: $-\frac{3}{5} + \frac{2}{15}$
12. Multiply: -2.4×-1.5
13. Divide: $8.1 \div -0.3$

Section 3: Expressions & Equations

14. Simplify: $3(x + 2) + 4x$
15. Solve for x: $5x - 3 = 22$
16. Evaluate: $2x^2 - 3x + 4$ when $x = -2$
17. Identify whether the equation $2x + 3y = 12$ is linear. Explain why.
18. Factor: $x^2 + 5x + 6$
19. Solve for x: $2(x - 3) = 4x + 6$

Section 4: Geometry

20. Find the area of a triangle with base 10 cm and height 12 cm.
21. A circle has a radius of 7 in. What is the circumference (use $\pi \approx 3.14$)?
22. Volume of a rectangular prism: length = 6, width = 4, height = 5.
23. Graph the following points and connect them: A(0,0), B(0,3), C(4,3), D(4,0). What shape did you make?
24. Find the area and perimeter of the shape in question 23.
25. A cylinder has a radius of 3 cm and a height of 10 cm. Find the volume.

Section 5: Statistics & Probability

26. Find the mean, median, and mode of this data set: 5, 9, 8, 5, 7, 10
27. A bag has 3 red marbles, 5 blue, and 2 green. What is the probability of pulling a red or green marble?
28. What is the likelihood of flipping a coin and getting heads 3 times in a row?
29. You roll two six-sided dice. What is the probability that the sum will be 7?

30. Create a bar graph to represent the number of pets in 5 households: 2, 4, 1, 3, 2.

Section 6: Word Problems

31. Sarah bought 3 notebooks at \$2.50 each and a pen for \$1.75. How much did she spend in total?

32. A car travels 240 miles in 4 hours. What is the average speed?

33. A rectangle has a length of 8 cm and a width of 5 cm. What is the area and perimeter?

34. John scored 85, 92, 88, and 91 on four math tests. What is his average score?

35. A pizza is cut into 8 equal slices. If you eat 3 slices, what fraction and percent of the pizza did you eat?

36. A tank holds 48 gallons of water. If it is filled at a rate of 6 gallons per minute, how long will it take to fill?

37. A school has 5 classes with 24 students each. How many students are there in total?

38. A store sells pencils at 4 for \$1. How much would 10 pencils cost?

39. If a book costs \$12.99 and there is a 6% sales tax, what is the total price?

40. You have \$50. You spend \$18.45 on lunch and \$12.30 on a book. How much money do you have left?

Reflection

Write one paragraph: Which area in math do you feel strongest in? Which one would you like to improve this year?