

7th Grade Math Summer Bridge

Preparation for 8th Grade Mathematics & Algebra Readiness

This review packet focuses on essential Texas Essential Knowledge and Skills (TEKS) from 7th Grade. Completing these problems over the summer will ensure you are ready for the rigorous curriculum of 8th Grade.

I. Rational Number Representations and Operations

Focus: Operations with integers, decimals, and fractions.

Simplify: $-12 + (-15) - (-8)$

Calculate: $4.5 \times (-2.4)$

Evaluate: $\frac{3}{4} \div (-\frac{9}{16})$

Convert $\frac{7}{8}$ to a decimal.

Order from least to greatest: -0.55 , $\frac{1}{2}$, -0.6 , 45%

A submarine descends at a rate of 15 feet per minute. What is its depth after 12 minutes?

A stock price dropped \$2.50 each day for 5 days. What was the total change in value?

Simplify: $15.4 - 18.9 + 3.2$

Find the value of $-3^2 + 10$.

If a person loses 2.5 pounds per week for 6 weeks, represent the total weight change as a rational number.

II. Proportionality and Percentages

Focus: Unit rates, constant of proportionality, and percent applications.

A map scale is 1 inch = 50 miles. If two cities are 3.5 inches apart on the map, what is the actual distance?

Find the constant of proportionality (k) for: $(2, 10)$, $(4, 20)$, $(6, 30)$.

If 5 pounds of apples cost \$7.50, what is the unit rate?

A jacket is originally \$60 but is on sale for 25% off. What is the sale price?

Calculate the total cost of a \$25 meal with an 18% tip.

A \$400 tablet has a sales tax of 8.25%. What is the total cost?

Determine if the relationship is proportional: $y = 3x + 1$.

Solve for x : $4/9 = x/27$

A picture width of 4 inches is enlarged proportionally to 10 inches. If the original height was 6 inches, what is the new height?

A store buys a shirt for \$15 and marks it up 60%. What is the retail price?

III. Expressions, Equations, and Inequalities

Focus: Two-step equations and modeling real-world scenarios.

Simplify: $3(x - 4) + 2x$

Solve for x : $2x + 5 = 15$

Solve for y : $y/4 - 3 = 7$

Solve the inequality: $-3x > 12$

Graph the solution to $x - 5 \leq -2$ on a number line (describe the endpoint and direction).

Write an equation for: "Five less than triple a number is 16."

Simplify: $-(4a - 5b) + 2a$

Solve for w : $0.5w - 2 = 8$

A taxi charges \$3.00 plus \$2.50 per mile. Write an expression for the cost of m miles.

Solve: $4(2x - 1) = 20$

IV. Geometry and Measurement

Focus: Circles, volume, and surface area.

Find the area of a circle with a radius of 5 cm. ($\pi \approx 3.14$)

Find the circumference of a circle with a diameter of 10 inches.

A triangle has a base of 8 ft and a height of 12 ft. Find its area.

Find the area of a composite figure: a rectangle (4x6) and a right triangle (base 4, height 3).

Calculate the volume of a rectangular prism: $5 \text{ in} \times 3 \text{ in} \times 10 \text{ in}$.

Find the volume of a triangular prism: base area 15 cm^2 , height 10 cm .

A circle has a circumference of 31.4 units. What is its radius?

Find the lateral surface area of a rectangular prism with base 3x4 and height 10.

Find the total surface area of a cube with a side length of 4 cm.

If two angles are supplementary and one is 115° , what is the other?

V. Data Analysis and Probability

Focus: Theoretical probability, mean, median, and dot plots.

A bag has 3 red, 5 blue, and 2 green marbles. Probability of picking blue?

Flipping a coin and rolling a 6-sided die: How many total possible outcomes?

Find the mean: $10, 15, 20, 25, 30$.

Find the median: $5, 12, 7, 14, 9$.

In a box plot, what range does the "box" itself represent?

Survey: $\frac{4}{10}$ students prefer pizza. Out of 500 students, how many prefer pizza?

Find the range: $12, 45, 23, 88, 34$.

If $P(E) = 0.15$, what is the probability of the complement?

A dot plot shows 5 dots at "2" and 3 dots at "4". What is the mode?

Calculate simple interest on $\$1,000$ at 5% for 3 years.

Answer Key

Detailed Solutions

1. -19
2. -10.8
3. $-4/3$ or -1.33
4. 0.875
5. -0.6, -0.55, 45%, $1/2$
6. 180 feet
7. -\$12.50
8. -0.3
9. 1
10. -15
11. 175 miles
12. $k = 5$
13. \$1.50 per lb
14. \$45.00
15. \$29.50
16. \$433.00
17. No (y-intercept $\neq 0$)
18. $x = 12$
19. 15 inches
20. \$24.00
21. $5x - 12$
22. $x = 5$
23. $y = 40$
24. $x < -4$
25. $x \leq 3$ (Closed circle at 3, left)
26. $3x - 5 = 16$
27. $-2a + 5b$
28. $w = 20$
29. $2.50m + 3.00$
30. $x = 3$
31. 78.5 cm^2
32. 31.4 inches
33. 48 ft^2
34. $30 \text{ units}^2 (24 + 6)$
35. 150 in^3
36. 150 cm^3
37. 5 units
38. 140 units^2
39. 96 cm^2
40. 65°
41. $5/10$ or $1/2$
42. 12 outcomes
43. 20
44. 9
45. Interquartile Range (IQR)
46. 200 students

47. 76

48. 0.85

49. 2

50. \$150

Keep practicing! Consistent review is the key to mathematical fluency.