

Name \_\_\_\_\_  
Rising Accelerated 8<sup>th</sup> Grade

Summer of 2022

Before heading into Geometry as an 8<sup>th</sup> grader, students should be proficient in the following topics. This summer packet is a way to assess your familiarity and should be fully completed by the first day of school **without a calculator**.

Students should be able to:

- All operations with rational numbers
- Solving proportions
- Solve multi-step equations and inequalities
- Solve systems of equations
- Add, subtract, multiply polynomials
- Factor polynomials, then solve using the Zero-Product property
- Simplify radicals, including all operations
- Calculate slope and find the equation of a line given two points, or the slope and one point
- Find the equation of a line parallel or perpendicular to a given line

1. Simplify the fraction: $\frac{24}{40}$	2. Add $-\frac{3}{5} + 5$
3. Divide $\frac{1}{8} \div \frac{3}{5}$	4. Subtract $2\frac{2}{3} - 4$
5. Multiply $-2 \cdot -5.26$	6. Solve $\frac{4}{5} = \frac{h}{35}$
7. Solve $\frac{2}{7} = \frac{5}{p}$	8. Solve $7p + 5 = 47$

9. Solve $2q - 7 = 31$	10. Solve $\frac{e}{5} - 6 = -9$
11. Solve $\frac{d}{3} + 4 = 1$	12. Solve $\frac{x+3}{5} = 12.2$
13. Evaluate the expression for $g = 9$ : $\frac{g}{3} + (-2)$	14. Evaluate the expression for $x = -2$ : $x^2 - 12$
15. Solve $-3x + 9 > 10$	16. Solve $-\frac{1}{2}x + 7 \leq 12$
17. Solve the system: $3x - 2y = 7$ $2x + 2y = 8$	18. Solve the system: $3x - y = 23$ $4x + 3y = 48$
19. Add $(x^3 - 5x^2 + 4x - 9) + (x^3 - 3x^2 + 10)$	20. Subtract $(5x^4 + 8x^2 - 8x + 12) - (9x^4 - 10x^2)$

<p>21. Multiply  <math>(x^2 - 4x)(x^2 + 3x - 8)</math></p>	<p>22. Multiply  <math>\left(2x - \frac{3}{2}\right)(x + 10)</math></p>
<p>23. Multiply  <math>(3x - 4)^2</math></p>	<p>24. Factor  <math>x^2 - 8x + 7</math></p>
<p>25. Factor  <math>4x^2 - 25</math></p>	<p>26. Factor and solve for <math>x</math>.  <math>3x^2 - 27 = 0</math></p>
<p>27. Factor and solve for <math>x</math>.  <math>2x^2 - 3x - 5 = 0</math></p>	<p>28. Solve using any method:  <math>x^2 - 10x = 39</math></p>
<p>29. Solve using any method:  <math>2x^2 = 18</math></p>	<p>30. Simplify.  <math>\sqrt{\frac{64}{100}}</math></p>
<p>31. Simplify  <math>\sqrt{128}</math></p>	<p>32. Simplify  <math>\sqrt{300x^3}</math></p>

<p>33. Find the slope of the line through <math>(-3, 1)</math> and <math>(5, 4)</math></p>	<p>34. Find the equation of the line that goes through <math>(-4, 6)</math> and <math>(4, 10)</math>.</p>
<p>35. Find the equation of the line <b>parallel</b> to the line in #34, that goes through the point <math>(6, 8)</math>.</p>	<p>36. Find the equation of the line <b>perpendicular</b> to the line in #34, that goes through the point <math>(6, 8)</math>.</p>
<p>37. Find the equation of the horizontal line through <math>(-3, 7)</math>. What is the slope of this line?</p>	<p>38. Find the equation of the vertical line through <math>(-3, 7)</math>. What is the slope of this line?</p>

39. Graph the line  $y = 3x - 2$

40. Graph the line  $3x - 7y = 21$

