This assignment aims to support students for Algebra 1 by practicing required skills from Pre-Algebra. This optional assignment is highly recommended, especially due to the length of asynchronous experiences during Distance Learning in the Spring of 2020. This Optional Assignment will be due Friday, September 11th and will count as enrichment points for 1st quarter. Please show all work for credit and attach extra pages with work, if needed. Use resources including websites, videos, and the key.

Simplify each expression by combining like terms.

1. \(7a + 6c + 9a - 15c\)  
2. \(4x^2 + 2x - 3x^2 + 4x\)  
3. \(-8y - 10 - 12 + 13y\)

Evaluate each expression if \(a = -3, b = -\frac{1}{2}, c = 7, d = 10,\) and \(e = 16.\)

4. \(b\sqrt{e} + a^2\)  
5. \(8 + |ac|\)  
6. \(-d + a^3 + 18b\)

Solve each one-step equation.

7. \(x + 8 = -52\)  
8. \(15 = x - 13\)  
9. \(-5x = 55\)

10. \(0.1x = 4\)  
11. \(-7 = \frac{x}{2}\)  
12. \(\frac{3}{4}x = 15\)
Solve each two-step equation.

13. \( 2x - 5 = 11 \)
14. \( 5x + 12 = -18 \)
15. \( \frac{1}{4}x + 5 = 13 \)

16. \( 14 - \frac{2}{3}x = 18 \)
17. \( 0.5x + 1.25 = 8.50 \)
18. \( \frac{x}{3} - 7 = -13 \)

Solve each proportion.

19. \( \frac{3}{4} = \frac{x}{60} \)
20. \( \frac{-14}{x} = \frac{2}{5} \)
21. \( \frac{x}{100} = \frac{7}{8} \)

22. Jennifer is ordering cake for her wedding reception. If one cake will feed 18 people, how many cakes does she need to order for 150 people?

Graph each inequality on a number line.

23. \( x < -2 \)
24. \( x \geq 4 \)
25. \( 3 < x \)
26. Write the coordinates for each point plotted below.
   The first one has been completed as an example.
   
   A (0, 4)
   B
   C
   D
   E
   F

27. Use the equation to complete the table of values. Then graph the equation on the coordinate plane.

\[ y = 2x - 1 \]

<table>
<thead>
<tr>
<th>x</th>
<th>y</th>
<th>Point</th>
</tr>
</thead>
<tbody>
<tr>
<td>-2</td>
<td>(y = 2(-2) - 1 = -5)</td>
<td>(-2, -5)</td>
</tr>
<tr>
<td>-1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td></td>
<td></td>
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<tr>
<td>1</td>
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<td>2</td>
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28. Use the equation to complete the table of values. Then graph the equation on the coordinate plane.

\[ y = \frac{1}{2}x + 6 \]

<table>
<thead>
<tr>
<th>x</th>
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<tbody>
<tr>
<td>-4</td>
<td>(y = \frac{1}{2}(-4) + 6 = 4)</td>
<td>(-4, 4)</td>
</tr>
<tr>
<td>-2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td></td>
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<tr>
<td>2</td>
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<tr>
<td>4</td>
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</table>
29. Write $4^3$ as a product (expanded form).
30. Write $2 \cdot 2 \cdot 2 \cdot 2$ as an exponential expression.

31. Evaluate $\sqrt{144}$
32. Evaluate $\sqrt{3^2 + 4^2}$

Write the following phrases as algebraic expressions.
33. The sum of a number and seven.
34. The difference of a number and eight.
35. The product of a number and nine.
36. Five less than a number.
37. The quotient of a number and ten.
38. Four more than a number.

Use the word bank to name the property illustrated in each statement.

<table>
<thead>
<tr>
<th>Associative</th>
<th>Commutative</th>
<th>Distributive</th>
<th>Identity</th>
<th>Inverse</th>
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</thead>
</table>

39. $x \cdot 2 = 2 \cdot x$
40. $(x + 2) + 5 = x + (2 + 5)$
41. $4x + 0 = 4x$
42. $7x + 2 - 2 = 7x$
43. $-2(x + 3) = -2x - 6$
44. $1x = x$
45. $3x \cdot \frac{1}{3} = x$

46. $5 + 2x = 2x + 5$
1. $16a - 9c$
2. $x^2 + 6x$
3. $5y - 22$
4. $7$
5. $29$
6. $-46$
7. $x = -60$
8. $x = 28$
9. $x = -11$
10. $x = 40$
11. $x = -14$
12. $x = 20$
13. $x = 8$
14. $x = -6$
15. $x = 32$
16. $x = -6$
17. $x = 14.50$
18. $x = -18$
19. $x = 45$
20. $x = -35$
21. $x = 87.5$
22. 9 cakes
23. 
24. 
25. 
26. B(-6, 0), C(-4, -4), D(-2, 6), E(5, 2), F(2, -4)
27. 

<table>
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<tbody>
<tr>
<td>−2</td>
<td>(−2, −5)</td>
</tr>
<tr>
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<td>(−1, −3)</td>
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<tr>
<td>1</td>
<td>(1, 1)</td>
</tr>
<tr>
<td>2</td>
<td>(2, 3)</td>
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28. 

<table>
<thead>
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<th>$x$</th>
<th>Point</th>
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<tr>
<td>−2</td>
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<tr>
<td>0</td>
<td>(0, 6)</td>
</tr>
<tr>
<td>2</td>
<td>(2, 7)</td>
</tr>
<tr>
<td>4</td>
<td>(4, 8)</td>
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