1. Translate the sentence into an equation.

   Two more than the quotient of a number and 4 is equal to 6.

   Use the variable \( c \) for the unknown number.

2. Solve the following system of equations.

   \[
   \begin{align*}
   8x - 5y &= -8 \\
   -4x + 9y &= 4
   \end{align*}
   \]

3. Solve for \( B \).

   \[ A = 8B + C \]

4. Solve for \( x \).

   \[ 6x - 16 = -8(x + 9) \]

   Simplify your answer as much as possible.

5. Solve the inequality for \( w \).

   \[ 5w - 6 < 9w - 30 \]

   Simplify your answer as much as possible.
6. Graph the inequality below on the number line.

\[ x > 0 \]

7. Find the \( y \)-intercept and the slope of the line.

\[ 4x + y = -1 \]

Write your answers in simplest form.

8. Write equations for the vertical and horizontal lines passing through the point \((4, -4)\).

vertical line:

horizontal line:
9. The equation of a line is given below.

\[ 6x + 7y = 21 \]

Find the \(x\)-intercept and the \(y\)-intercept.
Then use them to graph the line.

\(x\)-intercept: ______________
\(y\)-intercept: ______________

10. For the following right triangle, find the side length \(x\).
11. Solve for $y$.

$$\frac{y}{6} + \frac{y}{9} = \frac{5}{6}$$

Simplify your answer as much as possible.

12. Simplify.

$$2\sqrt{28} + \sqrt{63} + 16\sqrt{7}$$


$$5\sqrt{3}(\sqrt{6} + 3)$$

Simplify your answer as much as possible.


$$3y^2 + 21y = 0$$

15. Solve for $u$.

$$5u^2 = -16u - 3$$


$$\left(\frac{x^3y^4}{x^5y^2}\right)^3$$

Write your answer using only positive exponents.
17. Simplify.
\[
\left(7xy^2 + x^2y^2 - 6\right) - \left(5x^2y - 3\right)
\]

18. Multiply.
\[
\left(6x^2 + x - 4\right)(5x - 7)
\]
Simplify your answer.

19. Divide.
\[
\left(-14z^3y^7 + 15z^7y\right) \div (-2z^2y^3)
\]
Simplify your answer as much as possible.

20. Factor by grouping.
\[
pn - mn - 6p + 6m
\]

21. Factor completely.
\[
5u^2 + 15u - 90
\]
22. Factor by grouping (sometimes called the ac-method).

\[ 3x^2 - 5x - 8 \]

First, choose a form with appropriate signs. Then, fill in the blanks with numbers to be used for grouping. Finally, show the factorization.

<table>
<thead>
<tr>
<th>Form:</th>
</tr>
</thead>
<tbody>
<tr>
<td>( 3x^2 + _ _ x + _ _ x - 8 )</td>
</tr>
<tr>
<td>( 3x^2 + _ _ x - _ _ x - 8 )</td>
</tr>
<tr>
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</tr>
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Factorization:

_________________________

23. Factor completely.

\[ 50u^4 - 32u^2 \]


\[ \frac{y^5 z^2}{y^4 z^6} \]

25. Find an equation for the line that passes through the points \((5, -2)\) and \((-1, 1)\).
26. Evaluate the expression when $c = 2$ and $x = -5$.

\[-9c + x\]

27. Find the slope of the line graphed below.

![Graph of a line with points and slope](image)

28. Simplify.

\[
\frac{30n^{-4}m^{-7}}{6m^{-2}n^{-5}}
\]

Write your answer using only positive exponents.

29. A line passes through the point $(-8, 3)$ and has a slope of $-2$.

Write an equation in slope-intercept form for this line.
30. Multiply.

\[ \sqrt{6} \left( 9\sqrt{2} + \sqrt{7} \right) \]

Simplify your answer as much as possible.
1. \( \frac{c}{4} + 2 = 6 \)

2. 
   \[ x = -1 \]
   \[ y = 0 \]

3. \( B = \frac{A - C}{8} \)

4. \( x = -4 \)

5. \( w > 6 \)

6. 

7. y-intercept: \(-1\)
   slope: \(-4\)

8. vertical line: \( x = 4 \)
   horizontal line: \( y = -4 \)
9. $x$-intercept: $\frac{7}{2}$

$y$-intercept: 3

10. 17

11. $y = 3$

12. $23\sqrt{7}$

13. $15\sqrt{2} + 15\sqrt{3}$

14. $y = 0, -7$

15. $-\frac{1}{5}, -3$

16. $\frac{y^6}{x^6}$

17. $7x^2y^2 + x^2y^2 - 3 - 5x^2y$

18. $30x^3 - 37x^2 - 27x + 28$
19. \(7z^4 - \frac{15y^4}{2z}\)

20. \((p - m)(n - 6)\)

21. \(5(u - 3)(u + 6)\)

22.

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Factorization:

\((3x - 8)(x + 1)\)

23. \(2u^2(5u + 4)(5u - 4)\)

24. \(\frac{y}{z^4}\)

25. \(y = -\frac{1}{2}x + \frac{1}{2}\)

26. \(-23\)

27. \(-\frac{8}{3}\)

28. \(\frac{5}{n^m^5}\)

29. \(y = -2x - 13\)
30. $18\sqrt{3} + \sqrt{42}$