Solving Linear Equations Notes and Practice Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Bellwork:

1.  2. 

ACT Question: New one on board every day. This is example of first one and the website I get it from.

<http://sbstjohn.com/QODWebSite/PreElemAlg/alg_f036.htm>





*Remember:* Solving a linear equation is a process of undoing operations that have been applied to the variable when the equation was created. Your goal is to isolate the variable on one side of the equal sign.

*Remember:* You must always make the same changes to BOTH sides of the equal sign to "balance the equation".



Practice:

|  |  |  |
| --- | --- | --- |
| 1. 26 = 8 + 9v
 | 1. -15 + 2n = -9
 | 1. -4m – 9 = -13
 |
| 1. -6 = $\frac{4b}{18}$
 | 1. 16 = $\frac{4k}{11}$
 | 1. -126 = 2k + 8
 |
| 1. -17 = -2x – 15
 | 1. 3a + 11 = -20
 | 1. 18 + -5m = 8
 |

A linear equation can have *one solution, no solution, or infinite solutions*. The previous example was a linear equation with one solution.

A linear equation with **no solution** means that there is no value for the variable that makes the equation true. This is when the variable disappears and you are left with a **FALSE** statement. (ex. 3=7)

A linear equation with **infinite solutions** means that any value for the variable makes the equation true. This is when the variable disappears and you are left with a **TRUE** statement. (ex. 12=12)



Practice:

1. 4m - 4 = 4m 2. -9 + 4r = 4r – 3 - 6

3 24a - 22 = -4(1 - 6a) 4. 3 = 3(x – 5) – 3(x – 6)



 



Practice Solving with variables on both Sides and parentheses:

|  |  |  |  |
| --- | --- | --- | --- |
| 1. | −10 + x + 4 − 5 = 7x − 5 | 2. | 4n − 40 = 7(−2n + 2) |
| 3. | −31 − 4x = −5 − 5(1 + 5x) | 4. | 38 + 7k = 8(k + 4) |
| 5. | 8x + 4(4x − 3) = 4(6x + 4) − 4 | 6. | 4(−8x + 5) = −32x − 26 |
| 7. | −7x − 3x + 2 = −8x − 8 | 8. | −14 + 6b + 7 − 2b = 1 + 5b  |



Practice solving equations with decimals:.

|  |  |  |  |
| --- | --- | --- | --- |
| 1. | 0.72 = 0.4(x + 1.4) | 2. | 0.6v + 1.3v = 3.04 |
| 3. | −4.84 = −1.3k + 2.7 | 4. | −2.4 = 2.4k + 1.6k |
| 5. | −0.5x − 3.69 = x − 1.9 − 2.39 | 6. | 2.1(2.3 + 2.1x) = 11.65 + x |

Justify Steps to Linear Equations:







Practice Justification Steps:

