Introduction to Algebra

LIFT Team

1) $6 = \frac{a}{4} + 2$

2) $-6 + \frac{x}{4} = -5$

3) $9x - 7 = -7$

4) $0 = 4 + \frac{n}{5}$

5) $-4 = \frac{r}{20} - 5$

6) $-1 = \frac{5 + x}{6}$

7) $\frac{v + 9}{3} = 8$

8) $2(n + 5) = -2$

9) $-9x + 1 = -80$

10) $-6 = \frac{n}{2} - 10$

11) $-2 = 2 + \frac{v}{4}$

12) $144 = -12(x + 5)$

1) $-20 = -4x - 6x$

2) $6 = 1 - 2n + 5$

3) $8x - 2 = -9 + 7x$

4) $a + 5 = -5a + 5$

5) $4m - 4 = 4m$

6) $p - 1 = 5p + 3p - 8$

7) $5p - 14 = 8p + 4$

8) $p - 4 = -9 + p$

9) $-8 = -(x + 4)$

10) $12 = -4(-6x - 3)$

11) $14 = -(p - 8)$

12) $-(7 - 4x) = 9$

13) $-18 - 6k = 6(1 + 3k)$

14) $5n + 34 = -2(1 - 7n)$

15) $2(4x - 3) - 8 = 4 + 2x$

16) $3n - 5 = -8(6 + 5n)$

17) $-(1 + 7x) - 6(-7 - x) = 36$

18) $-3(4x + 3) + 4(6x + 1) = 43$

1) $|6m| = 42$

2) $|-6x| = 30$

3) $|k - 10| = 3$

4) $\left|\frac{x}{7}\right| = 3$

5) $|7 + p| = 7$

6) $|-3p| = 15$

7) $7|n| = 56$

8) $\frac{|m|}{5} = 3$

9) $-3|p| = -12$

10) $|m| + 2 = 11$

11) $|n| + 1 = 2$

12) $\frac{|x|}{7} = 5$

13) $\frac{|a - 5|}{8} = 5$

14) $4|n + 8| = 56$

15) $|7m| + 3 = 73$

16) $\left|\frac{x}{7}\right| - 8 = -7$

1) $\sqrt{110-n}=n$

2) $p=\sqrt{2-p}$

3) $\sqrt{30-x}=x$

4) $x=\sqrt{8x}$

5) $x=\sqrt{42-x}$

6) $\sqrt{12-r}=r$

7) $\sqrt{4n}=n$

8) $\sqrt{5v}=v$

9) $r=\sqrt{10r}$

10) $m=\sqrt{56-m}$

11) $b=\sqrt{-4+4b}$

12) $r=\sqrt{8r}$

1) $\frac{k+4}{4}+\frac{k-1}{4}=\frac{k+4}{4k}$

2) $\frac{1}{2m^2}=\frac{1}{m}-\frac{1}{2}$

3) $\frac{n^2-n-6}{n^2}-\frac{2n+12}{n}=\frac{n-6}{2n}$

4) $\frac{3x^2+24x+48}{x^2}+\frac{x-6}{2x^2}=$

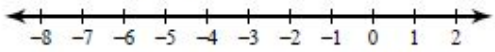
5) $\frac{k^2+2k-8}{3k^3}=\frac{1}{3k^2}+\frac{1}{k^2}$

6) $\frac{k}{3}-\frac{1}{3k}=\frac{1}{k}$

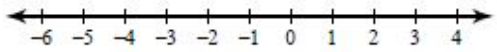
7) $\frac{x-4}{6x}+\frac{x^2-3x-10}{6x}=\frac{x-1}{6}$

8) $\frac{1}{x^2}=\frac{x-1}{x}+\frac{1}{x}$

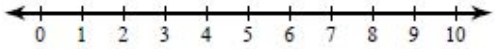
1) $3 < -5n + 2n$



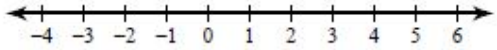
2) $6x + 2 + 6x < 14$



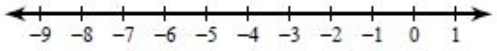
3) $-p - 4p > -10$



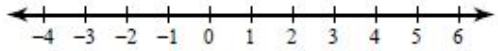
4) $18 \geq 5k + 4k$



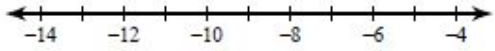
5) $9 \geq -2m + 2 - 3$



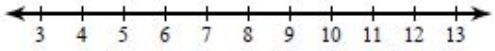
6) $-3 - 6(4x + 6) > -111$



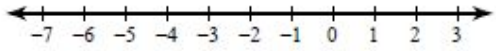
7) $6 - 4(6n + 7) \geq 122$



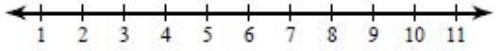
8) $-138 \geq -6(6b - 7)$



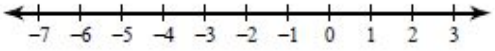
9) $167 < 6 + 7(2 - 7r)$



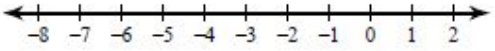
10) $5(6 + 3r) + 7 \geq 127$



11) $-8x + 2x - 16 < -5x + 7x$



12) $-1 - 6x - 6 > -11 - 7x$



1) $g = 6x$, for x

2) $u = 2x - 2$, for x

The state fair is a popular field trip destination. This year the senior class at High School A and the senior class at High School B both planned trips there. The senior class at High School A rented and filled 8 vans and 8 buses with 240 students. High School B rented and filled 4 vans and 1 bus with 54 students. Every van had the same number of students in it as did the buses. Find the number of students in each van and in each bus.

The senior classes at High School A and High School B planned separate trips to New York City. The senior class at High School A rented and filled 1 van and 6 buses with 372 students. High School B rented and filled 4 vans and 12 buses with 780 students. Each van and each bus carried the same number of students. How many students can a van carry? How many students can a bus carry?

Brenda's school is selling tickets to a spring musical. On the first day of ticket sales the school sold 3 senior citizen tickets and 9 child tickets for a total of $75. The school took in $67 on the second day by selling 8 senior citizen tickets and 5 child tickets. What is the price each of one senior citizen ticket and one child ticket?

Matt and Ming are selling fruit for a school fundraiser. Customers can buy small boxes of oranges and large boxes of oranges. Matt sold 3 small boxes of oranges and 14 large boxes of oranges for a total of $203. Ming sold 11 small boxes of oranges and 11 large boxes of oranges for a total of $220. Find the cost each of one small box of oranges and one large box of oranges.

1) Working alone, Ryan can dig a 10 ft by 10 ft hole in five hours. Castel can dig the same hole in six hours. How long would it take them if they worked together?

2) Shawna can pour a large concrete driveway in six hours. Dan can pour the same driveway in seven hours. Find how long it would take them if they worked together.

3) It takes Trevon ten hours to clean an attic. Cody can clean the same attic in seven hours. Find how long it would take them if they worked together.

4) Working alone, Carlos can oil the lanes in a bowling alley in five hours. Jenny can oil the same lanes in nine hours. If they worked together how long would it take them?

1) 2 m^3 of soil containing 35% sand was mixed into 6 m^3 of soil containing 15% sand. What is the sand content of the mixture?

2) 9 lbs. of mixed nuts containing 55% peanuts were mixed with 6 lbs. of another kind of mixed nuts that contain 40% peanuts. What percent of the new mixture is peanuts?

3) 5 fl. oz. of a 2% alcohol solution was mixed with 11 fl. oz. of a 66% alcohol solution. Find the concentration of the new mixture.

4) 16 lb of Brand M Cinnamon was made by combining 12 lb of Indonesian cinnamon which costs \$19/lb with 4 lb of Thai cinnamon which costs \$11/lb. Find the cost per lb of the mixture.

5) Emily mixed together 9 gal. of Brand A fruit drink and 8 gal. of Brand B fruit drink which contains 48% fruit juice. Find the percent of fruit juice in Brand A if the mixture contained 30% fruit juice.

6) How many mg of a metal containing 45% nickel must be combined with 6 mg of pure nickel to form an alloy containing 78% nickel?