Bell Work

1. Find the solution for $\begin{cases} 6x - 5y = -46 \\ 3x + y = -16 \end{cases}$. Show all work.

2. What is the slope for $16x + 12y = 144$?

3. What is the range in set notation of the absolute value parent function?

4. Divide $\dfrac{24a^{7}b^{-4}c^{-6}}{15a^{-2}b^{5}c^{-3}}$.

The new animated feature film is now playing 3 times a day at the local movie theater. One day, there were 20 adults, 43 children, and 10 senior citizens and the theater made $614 in ticket sales. At the next showing, there were 24 adults, 59 children, and 20 senior citizens with the theater making $852 in ticket sales. At the last showing, the theater made $405 with 13 adults, 30 children, and 5 senior citizens. How much are the tickets at the movie theater?

x: adults
y: children
z: seniors

Multiply the top equation by -2 and add it to the middle equation to eliminate the z.

$$(-2)\quad 20x + 43y + 10z = 614$$
$$24x + 59y + 20z = 852$$
$$13x + 30y + 5z = 405$$

$$-40x - 86y - 20z = -1228$$
$$\underline{24x + 59y + 20z = 852}$$
$$-16x - 27y = -376$$

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x: adults
y: children
z: seniors

Multiply the bottom equation by -2 and add it to the middle equation to eliminate the z.

$$20x + 43y + 10z = 614$$
$$24x + 59y + 20z = 852$$
$$(-2)\ 13x + 30y + 5z = 405$$

$$20x + 43y + 10z = 614$$
$$-26x - 60y - 10z = -810$$
$$-6x - 17y = -196$$

The new animated feature film is now playing 3 times a day at the local movie theater. One day, there were 20 adults, 43 children, and 10 senior citizens and the theater made $614 in ticket sales. At the next showing, there were 24 adults, 59 children, and 20 senior citizens with the theater making $852 in ticket sales. At the last showing, the theater made $405 with 13 adults, 30 children, and 5 senior citizens. How much are the tickets at the movie theater?

x: adults
y: children
z: seniors

$(-8) \quad -6x - 17y = -196$

$(3) \quad -16x - 27y = -376$

$48x + 136y = 1568$

$-48x - 81y = -1128$

$55y = 440$

$y = 8$

Multiply the top by -8 and the bottom by 3 to and add them to eliminate the x.

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x: adults
y: children
z: seniors

$y = 8$

$$-6x - 17y = -196$$

$$-6x - 17(8) = -196$$

$$-6x - 136 = -196$$

Substitute the 8 into one of the equations to find x.

$$-6x = -60$$

$$x = 10$$

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x: adults $x = 10$

y: children $y = 8$

z: seniors $z = 7$

Substitute the 8 and 10 into one of the equations to find z.

$$13(10) + 30(8) + 5z = 405$$

$$130 + 240 + 5z = 405$$

$$5z = 35$$

$$z = 7$$

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x: adults $x = 10$

y: children $y = 8$

z: seniors $z = 7$

An adult ticket costs $10, a child's ticket costs $8, and a senior citizen's ticket costs $7.00.

During the 1992-93 season, Michael Jordan made 2,541 points on 1,468 shots. Some were 3-point baskets, some were 2-point baskets, and rest were foul shots, which were worth 1 point. The amount of 2-point baskets were the same as twice his foul shots minus 41. How many points did he score of the 3 types of baskets?

x: foul shots
y: 2-point baskets
z: 3-point baskets

$$x + y + z = 1468$$

$$x + 2y + 3z = 2541$$

$$y = 2x - 41$$

Set up the 3 equations.

$$x + 2x - 41 + z = 1468$$

$$x + 2(2x - 41) + 3z = 2541$$

$$3x - 41 + z = 1468$$

$$x + 4x - 82 + 3z = 2541$$

$$3x + z = 1509$$

$$5x + 3z = 2623$$

Substitute the bottom equation into the other 2 to eliminate the y variable.

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x: foul shots
y: 2-point baskets
z: 3-point baskets

$$(-3)\quad 3x + z = 1509$$
$$5x + 3z = 2623$$

Multiply the top equation by -3 and add it to the bottom to eliminate the z.

$$-9x - 3z = -4527$$
$$\underline{5x + 3z = 2623}$$
$$-4x = -1904$$
$$x = 476$$

During the 1992-93 season, Michael Jordan made 2,541 points on 1,468 shots. Some were 3-point baskets, some were 2-point baskets, and rest were foul shots, which were worth 1 point. The amount of 2-point baskets were the same as twice his foul shots minus 41. How many points did he score of the 3 types of baskets?

x: foul shots
y: 2-point baskets
z: 3-point baskets

$x = 476$

$z = 81$

$3(476) + z = 1509$

$1428 + z = 1509$

$z = 81$

Substitute the x into one of the equations to find z.

During the 1992-93 season, Michael Jordan made 2,541 points on 1,468 shots. Some were 3-point baskets, some were 2-point baskets, and rest were foul shots, which were worth 1 point. The amount of 2-point baskets were the same as twice his foul shots minus 41. How many points did he score of the 3 types of baskets?

x: foul shots
y: 2-point baskets
z: 3-point baskets

$x = 476$
$y = 911$
$z = 81$

$y = 2(476) - 41 = 911$

Substitute the x into the equation to find y.

Michael Jordon made 476 foul shots, 911 2-point baskets, and 81 3-point baskets.

Assignment:

System of Equations with 3 Variables Word Problems Worksheet