1. $r - 4 = -8$
2. $\frac{5}{12} = s - \frac{11}{12}$
3. $m + 13 = 58$
4. $0.75 = n + 0.6$
5. $-5 + c = 22$
6. This year a high school had 578 sophomores enrolled. This is 89 less than the number enrolled last year. Write and solve an equation to find the number of sophomores enrolled last year.

$y - 89 = 578$
$+89 \quad +89$
$y = 667$

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Equations
Have = Signs

Only can solve if there is an = sign.

Expression x+5

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Mrs Pullo runs X miles

Joe runs 2 more than She does

How many miles does Joe Run

$X + 2$

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- Solving for a Variable
- Variable is the unknown
- We ISOLATE the Variable By using INVERSE OPERATIONS

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The Order of Things

$2x + 4(x+3) - x = 20x + 2$

1. Distribute
$2x + 4x + 12 - x = 20x + 2$
2. Combine Like Terms on the same side of equal sign
$5x + 12 = 20x + 2$
3. Inverse Operations To isolate Variable
$5x + 12 = 20x + 2$
$-5x \quad -5x$
$\frac{12}{2} = \frac{15x}{2} + \frac{2}{2}$
$\frac{10}{15} = \frac{15x}{15}$
$\frac{10}{15} = x$
$\frac{2}{3} = x$

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1. $r - 4 = -8$
$+4 \quad +4$
$r = -4$

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2. $\frac{5}{12} = s - \frac{11}{12}$

$+\frac{11}{12} \quad +\frac{11}{12}$

$\frac{16}{12} = s$

$\frac{4}{3} = s$

$1\frac{1}{3} = s$

$\frac{4}{3} = 1\frac{1}{3}$

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$\frac{14}{7} = 2\frac{2}{7}$

$3\frac{4}{5} = \frac{19}{5}$

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3. $8y = 4$

4. $126 = -9q$

5. $\frac{2}{5}m = 16$

6. $\frac{15}{16}c = \frac{25}{48}$

7. A person's weight on Venus is about $\frac{9}{10}$ his or her weight on Earth. Write and solve an equation to find how much a person weighs on Earth if he or she weighs 108 pounds on Venus.

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$\frac{m}{7} = 3$

$7 \cdot \frac{m}{7} = 3 \cdot 7$

$m = 21$

or

$21 = m$

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2. $\frac{x}{100} = .028$

$100 \cdot \frac{x}{100} = .028(100)$

$x = 2.8$

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K H D B D C M

B: meter, Liter, grams

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3 $\frac{8y}{8} = \frac{4}{8}$

$y = \frac{1}{2}$

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4. $\frac{12^{3}6}{-9} = \frac{-9\cancel{8}}{-\cancel{9}}$

$-14 = 9$

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5. $\frac{\frac{2}{5}x}{\frac{2}{5}} = \frac{16}{\frac{2}{5}}$ $\frac{8}{\frac{16}{1}} \times \frac{5}{2}$

$x = 40$

$\left(\frac{5}{2}\right)\frac{2}{5}x = {}^{8}16\left(\frac{5}{2}\right)$

$x = 40$

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$\frac{2}{3} \cdot \frac{108}{1}$

$\frac{2}{3}\left(\overset{36}{\cancel{108}}\right) = 72$

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5. $\frac{15}{16}c = \frac{25}{48}$

$\left(\frac{\cancel{16}}{\cancel{15}}\right)\frac{\cancel{15}}{\cancel{16}}c = \frac{5}{\cancel{3}}\frac{\cancel{25}}{\cancel{48}}\left(\frac{\cancel{16}}{\cancel{15}}\right)\frac{1}{\cancel{3}} = \frac{5}{3} \cdot \frac{1}{3}$

$c = \frac{5}{9}$

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7. A person's weight on Venus is about $\frac{9}{10}$ his or her weight on Earth. Write and solve an equation to find how much a person weighs on Earth if he or she weighs 108 pounds on Venus.

$V = \frac{9}{10}E$

(is)

$108 = \frac{9}{10}e$

$\left(\frac{10}{9}\right)\overset{12}{\cancel{108}} = \frac{\cancel{9}}{\cancel{10}}e\left(\frac{\cancel{10}}{\cancel{9}}\right)$

$120 = e$

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$\frac{2}{7}(14)$

$\frac{2}{7} \div \frac{14}{1} = \frac{28}{7} = 4$

$\frac{2}{\cancel{7}_1} \cdot \frac{\cancel{14}^2}{1} = 4$

$\frac{2}{\cancel{7}}\left(\cancel{14}^{2}\right) = 4$

$\frac{3}{\cancel{8}}\left(\cancel{40}^{5}\right) = 15$

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