

Sample Math Placement Exam Question solutions:

Please note that many printers will not interpret some of the notation correctly so after you print this you may want to double check some of the answers.

Algebra:

1. $x = \frac{8 \pm \sqrt{80}}{2} = 4 \pm 2\sqrt{5}$

2. $2x(x-4)=0$ or $x=0$ or $x=4$

3. $\frac{(x+y)(x-y)}{x-y} \cdot \frac{(x+y)}{x(y+x)} = \frac{x+y}{x}$

4. $\frac{(x+2)}{(x-3)(x+2)} + \frac{(x-3)}{(x-5)(x-3)} = \frac{1}{x-3} + \frac{1}{x-5} = \frac{x-5+x-3}{(x-3)(x-5)} = \frac{2x-8}{(x-3)(x-5)}$

5. Let x be the time it takes them both to mow the lawn.

$$\frac{1}{3}x + \frac{1}{4}x = 1 \Rightarrow 4x + 3x = 12 \Rightarrow x = \frac{12}{7} \text{ hours}$$

6. Multiplying by LCD gives the equation:

$x + 2(x-3) = 4(x+3)$ which gives $x = -18$. This answer checks in the original equation.

7. Let x be the rate of the current and t be time. The system of equations is:

$$\begin{aligned} 20 &= (15+x)(t) \\ 10 &= (15-x)(t) \end{aligned}$$

Using substitution as a technique for solution, we have:

$$\frac{20}{15+x} = t \text{ so } 10 = (15-x)\left(\frac{20}{15+x}\right)$$

Solving this last equation by multiplying both sides by $15+x$ results in the equation:

$$10(15+x) = 20(15-x) \text{ or } x = 5 \text{ mph.}$$