

### Harder Solve Practice #3

Solve:

1.  $\frac{x-1}{2} = 5$

2.  $x^2 = 15 - 2x$

3.  $7x - x^2 = 10$

4.  $x^2 = \frac{8x-6}{2}$

5.  $3x^2 = 24x + 27$

6.  $\frac{3x+7}{2} = 1.1$

7.  $27x^{-2} = 3$

8.  $\frac{x^2+16}{4} = 2x$

9.  $4x = \frac{x^2}{2.5}$

10.  $3 = 1\frac{3}{5}(x+2)$

These are significantly harder

11.  $\frac{3}{x+2} = \frac{5}{2x}$

12.  $\frac{x+1}{x-5} = 3$

13.  $\frac{2}{x+1} = \frac{4}{x+3}$

14.  $\frac{x}{5} + \frac{0.6}{x-1} = 1$

15.  $\frac{x}{2} = \frac{8}{x}$

16.  $\frac{5}{x-2} - \frac{7}{x+2} = 0$

17.  $x^3 + 7x^2 = 0$

18.  $\frac{1}{x+5} = \frac{x}{x-4}$

19.  $\frac{2}{1-x} = \frac{-3}{x+2}$

20.  $\frac{4}{x-5} = \frac{x}{x-2}$

## Answers: Harder Solve Practice #3

To remove a fraction you multiply **all** the equation by the denominator

1.  $\frac{x-1}{2} = 5$        $\times 2 =$        $x - 1 = 10$        $x = 11$
2.  $x^2 = 15 - 2x$        $x^2 + 2x - 15 = 0$        $(x - 3)(x + 5) = 0$        $x = 3$  or  $-5$
3.  $7x - x^2 = 10$        $x^2 - 7x + 10 = 0$        $(x - 5)(x - 2) = 0$        $x = 2$  or  $5$
4.  $x^2 = \frac{8x-6}{2}$        $x^2 = 4x - 3$        $(x - 3)(x - 1) = 0$        $x = 1$  or  $3$
5.  $3x^2 = 24x + 27$        $\div 3 =$        $x^2 - 8x - 9 = 0$        $x = -1$  or  $9$
6.  $\frac{3x+7}{2} = 1.1$        $\times 2 =$        $3x + 7 = 2.2$        $x = -1.6$
7.  $27x^{-2} = 3$        $\times x^2 \div 3 =$        $9 = x^2$        $x = \pm 3$
8.  $\frac{x^2+16}{4} = 2x$        $\times 4 =$        $x^2 - 8x + 16 = 0$        $x = 4$
9.  $4x = \frac{x^2}{2.5}$        $\times 2.5 =$        $x(x - 10) = 0$        $x = 0$  or  $10$
10.  $3 = 1\frac{3}{5}(x + 2)$        $\times \frac{5}{8} =$        $\frac{15}{8} = x + 2$        $x = \frac{-1}{8} = -0.125$

If there are two denominators to remove, you multiply all terms by both

11.  $\frac{3}{x+2} = \frac{5}{2x}$        $\times 2x(x+2) =$        $6x = 5(x+2)$        $x = 10$
12.  $\frac{x+1}{x-5} = 3$        $\times (x-5) =$        $x+1 = 3(x-5)$        $x = 8$
13.  $\frac{2}{x+1} = \frac{4}{x+3}$        $\times (x+1)(x+3) =$        $2(x+3) = 4(x+1)$        $x = 1$
14.  $\frac{x}{5} + \frac{0.6}{x-1} = 1$        $\times 5(x-1) =$        $x(x-1) + 3 = 5(x-1)$        $x = 4$  or  $2$
15.  $\frac{x}{2} = \frac{8}{x}$        $\times 2 \times x =$        $x^2 = 16$        $x = 4$  or  $-4$
16.  $\frac{5}{x-2} - \frac{7}{x+2} = 0$        $\times (x+2)(x-2) =$        $5(x+2) - 7(x-2) = 0$        $x = 12$
17.  $x^3 + 7x^2 = 0$        $x^2(x+7) = 0$        $x^2 = 0$  or  $x+7 = 0$        $x = 0$  or  $-7$
18.  $\frac{1}{x+5} = \frac{x}{x-4}$        $\times (x+5)(x-4) =$        $x-4 = x(x+5)$        $x = -2$
19.  $\frac{2}{1-x} = \frac{-3}{x+2}$        $\times (1-x)(x+2) =$        $2x+4 = -3 - -3x$        $x = -7$
20.  $\frac{4}{x-5} = \frac{x}{x-2}$        $\times (x-5)(x-2) =$        $4(x-2) = x(x-5)$        $x = 1$  or  $8$