

AC Math 1
Solving by factoring

Solve the equation.

1. $(x+8)(x+6)=0$

$x+8=0 \quad x+6=0$

$x=-8 \quad x=-6$

$\{-8, -6\}$

2. $x(x-5)=0$

$x=0 \quad x-5=0$

$x=5$

$\{0, 5\}$

3. $(2x+5)(x-3)=0$

$2x+5=0 \quad x-3=0$

$x=-\frac{5}{2} \quad x=3$

$\{-\frac{5}{2}, 3\}$

4. $2x(3x-2)=0$

$2x=0 \quad 3x-2=0$

$x=0 \quad x=\frac{2}{3}$

$\{0, \frac{2}{3}\}$

5. $\left(\frac{1}{3}-3x\right)\left(\frac{1}{5}+2x\right)=0$

$\frac{1}{3}-3x=0 \quad \frac{1}{5}+2x=0$

$x=\frac{1}{9} \quad x=-\frac{1}{10}$

$\{\frac{1}{9}, -\frac{1}{10}\}$

6. $x^2+7x-18=0$

$(x+9)(x-2)=0$

$x=-9 \quad x=2$

$\{-9, 2\}$

7. $x^2+11x+18=0$

$(x+9)(x+2)=0$

$x=-9 \quad x=-2$

$\{-9, -2\}$

8. $x^2-49=0$

$(x+7)(x-7)=0$

$x=-7 \quad x=7$

$\{-7, 7\}$

9. $2x^2-2x-4=0$

$2(x^2-x-2)=0$

$2(x-2)(x+1)=0$

$x=2 \quad x=-1$

$\{-1, 2\}$

10. $x^2+10x+25=0$

$(x+5)^2=0$

$x=-5$

$\{-5\}$

11. $x^2 - x = 42$

$$x^2 - x - 42 = 0$$
$$(x-7)(x+6) = 0$$
$$x = 7 \quad x = -6$$

$$\{ -6, 7 \}$$

12. $x^2 - 2x = 63$

$$x^2 - 2x - 63 = 0$$
$$(x-9)(x+7) = 0$$
$$x = 9 \quad x = -7$$

$$\{ -7, 9 \}$$

13. $x^2 - 48 = -2x$

$$x^2 + 2x - 48 = 0$$
$$(x-6)(x+8) = 0$$
$$x = 6 \quad x = -8$$

$$\{ -8, 6 \}$$

14. $x^2 = 2x - 1$

$$x^2 - 2x + 1 = 0$$
$$(x-1)^2 = 0$$
$$x = 1$$

$$\{ 1 \}$$

15. $2y^2 + 9y = -10$

$$2y^2 + 9y + 10 = 0$$
$$(2y+5)(y+2) = 0$$
$$y = -5/2 \quad y = -2$$

$$\{ -5/2, -2 \}$$

16. $7m^2 = 8m$

$$7m^2 - 8m = 0$$
$$m(7m-8) = 0$$
$$m = 0 \quad m = 8/7$$

$$\{ 0, 8/7 \}$$

17. $6m^2 - 33m + 15 = 0$

$$3(2m^2 - 11m + 5) = 0$$
$$3(2m-1)(m-5) = 0$$
$$m = 1/2 \quad m = 5$$

$$\{ 1/2, 5 \}$$

18. $3a^2 + 1 = 4a$

$$3a^2 - 4a + 1 = 0$$
$$(3a-1)(a-1) = 0$$
$$a = 1/3 \quad a = 1$$

$$\{ 1/3, 1 \}$$

19. $9y^2 = 18y + 16$

$$9y^2 - 18y - 16 = 0$$
$$(3y+2)(3y-8) = 0$$
$$y = -2/3 \quad y = 8/3$$

$$\{ -2/3, 8/3 \}$$

20. $m(3m+1) = 2$

$$3m^2 + m - 2 = 0$$
$$(3m-2)(m+1) = 0$$
$$m = 2/3 \quad m = -1$$

$$\{ -1, 2/3 \}$$

21. $y(y-5) = 14$

$$y^2 - 5y - 14 = 0$$
$$(y-7)(y+2) = 0$$
$$y = 7 \quad y = -2$$

$$\{ -2, 7 \}$$

22. $b(b+9) = 4(5+2b)$

$$b^2 + 9b = 20 + 8b$$
$$b^2 + b - 20 = 0$$
$$(b+5)(b-4) = 0$$
$$b = -5 \quad b = 4$$

$$\{ -5, 4 \}$$