

negative and mp is positive, so m and p are both negative. $x^2 + 6x - 16 = (x - 2)(x + 8)$

Since $-7 + (-1) = -8$ and $(-7)(-1) = 7$, $m = -7$ and $p = -1$.

$$x^2 - 8x + 7 = (x - 7)(x - 1)$$

Exercises

Factor each polynomial.

1. $x^2 + 4x + 3$

$$(m+4)(m+8)$$

2. $m^2 + 12m + 32$

3. $r^2 - 3r + 2$

①

$$x^2 + 4x + 3$$

	x	3
x	x^2	$3x$
1	x	3

$(x+3)(x+1)$

$$(r-1)(r-2)$$

$$(x+1)(x+3)$$

2)

x
-y

x^2	$7xy$
$-xy$	$-7y^2$

$$(x-y)(x+7y)$$

$$(a-12)(a-2)$$

16. $x^2 + 12x + 20$

19. $x^2 + 2xy + y^2$

17. $a^2 - 14a + 24$

20. $a^2 - 4ab + 4b^2$

18. $18 + 11y + y^2$

21. $x^2 + 6xy - 7y^2$

⑨

	1	-x
9	9	-9x
-x	-1x	x ²

7. $t^2 - 4t - 12$

$(t - 6)(t + 2)$

8. $p^2 - 16p + 64$

$(p - 8)(p - 8)$

9. $9 - 10x + x^2$

$(1 - x)(9 - x)$

$$\textcircled{11} \quad (4a+3)(8a+7)=0$$

Solve each equation. Check your solutions.

1. $x(x+3)=0$

4. $3x(2x-1)=0$

7. $(4c+2)(2c-7)=0$

10. $12x^2=-6x$

13. $x^2=-2x$

11. $(4a+3)(8a+7)=0$

14. $(6y-4)(y+3)=0$

12. $8y=12y^2$

15. $4m^2=4m$

$$\begin{array}{l} 4a+3=0 \\ \underline{-3 \quad -3} \\ 4a = -3 \\ \underline{4} \\ a = -\frac{3}{4} \end{array} \quad \left\{ \begin{array}{l} 8a+7=0 \\ \underline{-7 \quad -7} \\ 8a = -7 \\ \underline{8} \\ a = -\frac{7}{8} \end{array} \right.$$