

Factor out the greatest common factor.

1) [5.1] $48x^9y^9 + 12x^4y^4 - 60x^6y^2$

2) [5.1] $5x^2 + 20x$

Factor by grouping.

3) [5.1] $20x^2 - 16xy - 25xy + 20y^2$

4) [5.1] $r^3 + r^2 + 9r + 9$

Factor Completely

5) [5.2] $x^2 - x - 48$

6) [5.2] $x^3 - x^2 - 12x$

7) [5.2] $x^2 + 2xy - 99y^2$

8) [5.3] $20z^2 + 3z - 9$

9) [5.3] $6x^2 + 11xt + 3t^2$

10) [5.3] $49 - 14x + x^2$

Factor as completely as possible. If the polynomial is not factorable, indicate that the polynomial is prime.

11) [5.4] $25x^2 - 9$

12) [5.4] $x^4 - 1$

13) [5.4] $16x^2 + 56x + 49$

Solve the equation.

14) [5.7] $(x-2)(x+4) = 0$

15) [5.7] $x(3x+15) = 0$

16) [5.7] $x^2 + 2x - 8 = 0$

17) [5.7] $4k^2 - 25 = 0$

18) [5.7] $12r^2 = 3r$

19) [5.7] $10b^2 + 33b + 4 = -16$

20) [5.7] $5k^2 - 39k - 8 = 0$