

Ch9 More Practice Factoring

Factor each completely.

1) $5k^2 - 50k + 125 = 5(k^2 - 10k + 25)$

$5(k-5)^2$

2) $4n^2 + 56n + 196 = 4(n^2 + 14n + 49)$

$4(n+7)^2$

3) $-2b^2 + 32 = -2(b^2 - 16)$

$-2(b-4)(b+4)$

4) $-3n^2 + 51n - 210 = -3(n^2 - 17n + 70)$

$-3(n-10)(n-7)$

5) $2x^3 - 4x^2 - 8x + 16 = 2(x^3 - 2x^2 - 4x + 8)$

$2(x-2)^2(x+2)$
 $2(x^2(x-2) - 4(x-2))$
 $2(x-2)(x^2-4)$

6) $20n^3 - 12n^2 - 5n + 3 = 4n^2(5n-3) - 1(5n+3)$

$(2n-1)(2n+1)(5n-3)$ $(5n-3)(4n^2-1)$

7) $4x^3 - 16x^2 + x - 4 = 4x^2(x-4) + 1(x-4)$

$(4x^2+1)(x-4)$

8) $24x^3 + 32x^2 - 6x - 8 = 2(12x^3 + 16x^2 - 3x - 4)$

$2(2x-1)(2x+1)(3x+4)$
 $2(4x^2(3x+4) - 1(3x+4))$
 $2(3x+4)(4x^2-1)$

Solve each equation by factoring.

9) $3a^2 - 60 = 3a \Rightarrow 3a^2 - 3a - 60 = 0$

$a = \{5, -4\}$
 $3(a^2 - a - 20) = 0$
 $3(a-5)(a+4) = 0$

10) $7x^2 + 252 = -84x$

$x = \{-6\}$
 $7x^2 + 84x + 252 = 0$
 $7(x^2 + 12x + 36) = 0$
 $7(x+6)^2 = 0$

11) $3v^2 - 12 = 9v$

$v = \{-1, 4\}$
 $3v^2 - 9v - 12 = 0$
 $3(v^2 - 3v - 4) = 0$
 $3(v-4)(v+1) = 0$

12) $5x = -5x^2 + 100$

$x = \{4, -5\}$
 $5x^2 + 5x - 100 = 0$
 $5(x^2 + x - 20) = 0$
 $5(x+5)(x-4) = 0$

13) $10n^2 = -2n + 8$

$n = \left\{ \frac{4}{5}, -1 \right\}$
 $10n^2 + 2n - 8 = 0$
 $2(5n^2 + n - 4) = 0$
 $2(5n-4)(n+1) = 0$

14) $6n^2 = 26n + 20$

$n = \left\{ -\frac{2}{3}, 5 \right\}$
 $6n^2 - 26n - 20 = 0$
 $2(3n^2 - 13n - 10) = 0$
 $2(3n+2)(n-5) = 0$