

Lesson #4b Factoring Trinomials

Date Feb 20, 2018

Factor each completely.

1) $5n^2 + 47n - 30$

$$\begin{array}{c|c} \times & + \\ \hline -150 & +47 \end{array}$$

-1, 150
-2, 75
-3, 50

$$= 5n^2 + 50n - 3n - 30$$

$$= 5n(n+10) - 3(n+10)$$

$$= (n+10)(5n-3)$$

2) $9k^2 + 8k + 8$

$$\begin{array}{c|c} \times & + \\ \hline 72 & +8 \end{array}$$

unfactorable

1, 72 = 73
2, 36 = 36
3, 24 = 27
4, 18 = 22
6, 12 = 18
8, 9 = 17

3) $3a^2 - 18a - 48$

$$= 3(a^2 - 6a - 16)$$

$$= 3(a^2 - 8a + 2a - 16)$$

$$= 3[a(a-8) + 2(a-8)]$$

$$= 3(a-8)(a+2)$$

4) $24k^2 - 100k + 56$

$$= 4(6k^2 - 25k + 14)$$

$$= 4(6k^2 - 4k - 21k + 14)$$

$$= 4[2k(3k-2) - 7(3k-2)]$$

$$= 4(3k-2)(2k-7)$$

-1, -84
-2, -42
-3, -28
-4, -21

5) $9a^2 - 16$

$$= 9a^2 + 0a - 16$$

$$= 9a^2 - 12a + 12a - 16$$

$$= 3a(3a-4) + 4(3a-4)$$

$$= (3a-4)(3a+4)$$

$$\begin{array}{c|c} \times & + \\ \hline -144 & 0 \end{array}$$

-1, 144
-2, 72
-12, 12

6) $25b^2 - 90b + 81$

$$= 25b^2 - 45b - 45b + 81$$

$$= 5b(5b-9) - 9(5b-9)$$

$$= (5b-9)(5b-9)$$

$$= (5b-9)^2$$

-1, -2025
-5, -405
-15, -135
-25, -81
-27, -75
-45, -45