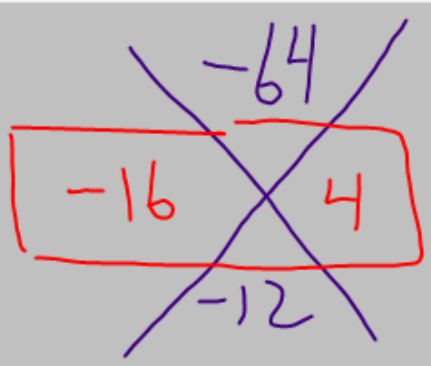
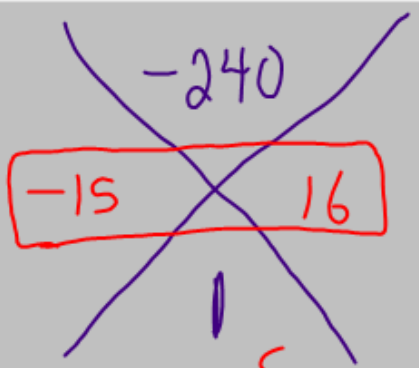
Factor the following trinomials:

$1x^2 - 12x - 64$



$(x-16)(x+4)$

$40x^2 + x - 6$



$40x^2 - 15x + 16x - 6$

$5x(8x-3) + 2(8x-3)$

$(8x-3)(5x+2)$

1) $4n^2 + 24n - 108$

$4(n^2 + 6n - 27)$

$4(n+9)(n-3)$

2) $6n^2 - 30n - 300$

$6(n^2 - 5n - 50)$

$6(n+5)(n-10)$

3) $3x^2 - 3x - 36$

$3(x^2 - x - 12)$

$3(x-4)(x+3)$

4) $2n^2 - 10n - 72$

$2(n^2 - 5n - 36)$

$2(n+4)(n-9)$

5) $3b^2 - 2b - 16$

$3b^2 - 8b + 6b - 16$

$b(3b-8) + 2(3b-8)$

$(b+2)(3b-8)$

6) $7m^2 + 74m + 40$

1 × 280
2 × 140
4 × 70

$7m^2 + 4m + 70m + 40$

$m(7m+4) + 10(7m+4)$

$(m+10)(7m+4)$

7) $7v^2 + 71v + 72$

1 x 504
2 x 252
3 x 168
4 x 126
6 x 84
7 x 72
8 x 63

$7v^2 + 8v + 63v + 72$

$v(7v+8) + 9(7v+8)$

$(v+9)(7v+8)$

8) $7a^2 + 31a + 12$

1 x 84
2 x 42
3 x 28

$7a^2 + 3a + 28a + 12$

$a(7a+3) + 4(7a+3)$

$(a+4)(7a+3)$

9) $6n^2 + 31n + 35$

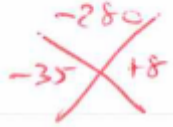
1 x 210
2 x 105
5 x 42
6 x 35
7 x 30
10 x 21

$6n^2 + 10n + 21n + 35$

$2n(3n+5) + 7(3n+5)$

$(2n+7)(3n+5)$

10) $10n^2 - 27n - 28$



1 x 280
2 x 140
4 x 70
5 x 56
7 x 40
8 x 35

$10n^2 - 35n + 8n - 28$

$5n(2n-7) + 4(2n-7)$

$(5n+4)(2n-7)$

11) $9m^2 + 33m + 10$

1 x 90
2 x 45
3 x 30

$9m^2 + 30m + 3m + 10$

$3m(3m+10) + 1(3m+10)$

$(3m+1)(3m+10)$

12) $9r^2 + 6r - 35$

1 x 315
3 x 105
5 x 63
7 x 45
15 x 21

$9r^2 - 15r + 21r - 35$

$3r(3r-5) + 7(3r-5)$

$(3r+7)(3r-5)$

13) $10n^2 - 17n + 3$

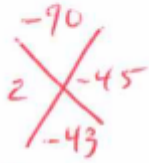
1 x 30
2 x 15

$10n^2 - 2n - 15n + 3$

$2n(5n-1) - 3(5n-1)$

$(2n-3)(5n-1)$

14) $9x^2 - 43x - 10$



1 x 90
2 x 45

$9x^2 + 2x - 45x - 10$

$x(9x+2) - 5(9x+2)$

$(x-5)(9x+2)$

Perfect Squares

$x^2 + 6x + 9$

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

$(x+3)^2$

$x \cdot x \quad 3 \cdot 3$

$2(3 \cdot x) = 6x$

$1x^2 - 8x + 16$

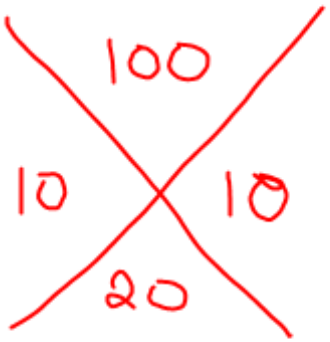
$(x - 4)^2$

$(x-4)(x-4)$

$(x-4)^2$

$4x^2 + 20x + 25$

$2x$ $\qquad$ 5



$4x^2 + 10x + 10x + 25$

$2x(2x+5) \quad 5(2x+5)$

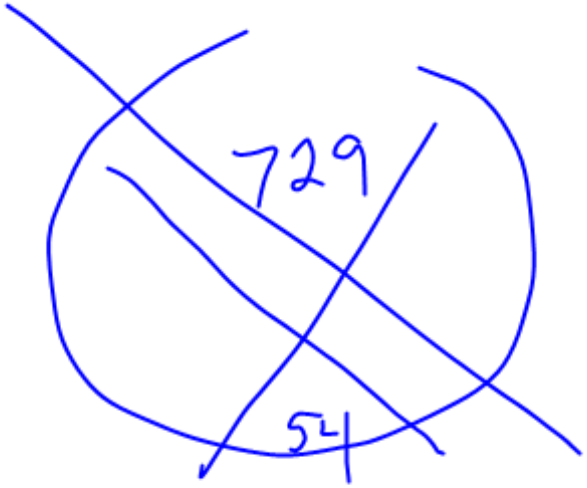
$(2x+5)(2x+5)$

$(2x+5)^2$

$9x^2 + 54x + 81$

$\downarrow \qquad \qquad \downarrow$

$(3x + 9)^2$



$3 \cdot 9 = 27$

$\times 2$

54

11 · 11

7 · 7

$121x^2 - 154x + 49$

2 · 7 · 11

$(11x - 7)^2$

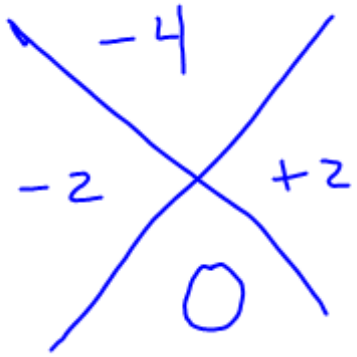
Difference of Squares

$x^2 + 0x - 4$

$x^2 - 4$

perfect sq.

perfect sq.

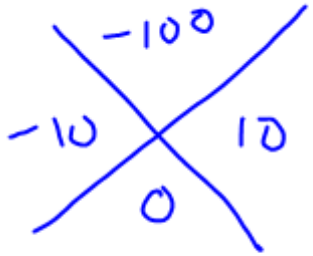


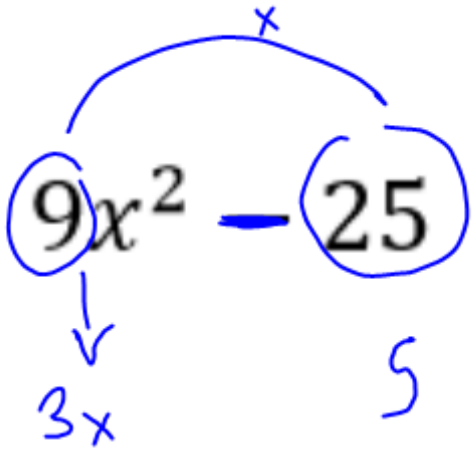
$(x-2)(x+2)$

$x^2 - 100$

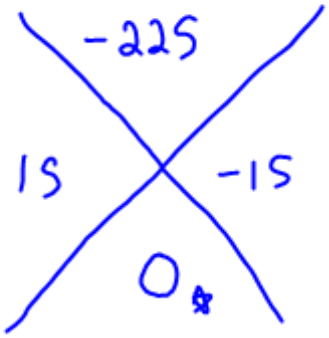
x 10

$(x - 10)(x + 10)$





$(3x-5)(3x+5)$



$9x^2 + 15x - 15x - 225$

$3x(3x+5)$ $-5(3x+5)$

$(3x+5)(3x-5)$

$100x^2 - 4$

$10x$ $\quad$ 2

$(10x + 2)(10x - 2)$

Sum of Squares

$x^2 + 1$

$(x + i)(x - i)$

F: x^2

O: $-ix$

I: $+ix$

L: $-i^2$

$x^2 - ix + ix - i^2$

$x^2 - i^2$

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

$1 \cdot 1$

$1 + 1 = 2$

$-1 \cdot -1 = 1$

$-1 + -1 = -2$

$-1 \cdot 1 = -1$

$$x^2 + 36 = (x + 6i)(x - 6i)$$

$$x^2 - 6ix + 6ix - 36i^2$$

$$-36(-1)$$

$$x^2 + 36$$

$49x^2 + 64$

$(7x \pm 8i)(7x - 8i)$

$49x^2 - 64i^2$

$49x^2 + 64$

$(7x - 8)(7x + 8)$

$49x^2 - 64$

$(7x + 8)^2$

$49x^2 + 112x + 64$

$x^2 + 64 = (x + 8i)(x - 8i)$

$25x^2 + 36 = (5x + 6i)(5x - 6i)$

$x^2 - 12x + 36$

$9x^2 + 30x + 25$

$x^2 - 121$

$4x^2 + 16$

HW #15
Factoring Special Products