Bell Work:

Determine the value of a that make the equality true.

$$22 + 8x - x^2 = a - (x-4)^2$$

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

$22+8x-x^2 = a-(x^2-8x+16)$

$x^2-4x-4x+16$

$22+8x-x^2 = a-x^2+8x-16$

$x^2-8x+16$

$+16-8x+x^2 \quad +x^2-8x+16$

$38 = a$

Factor each expression.

1. $2w^2 + 13w + 15$

$A=2 \quad B=13 \quad C=15$

$a(c)$

$30 \mid 13$

$5(6)$

$2(15)$

$3(10) \mid \frac{3}{2}+\frac{10}{2}$

$\left(w+\frac{3}{2}\right)\left(w+\frac{10}{2}\right)$

$(2w+3)(w+5)$

3. $4n^2 + 62n - 32$

$2(2n^2+31n-16)$

$A=2 \quad B=31 \quad C=-16$

$-32 \mid 31$

$1(32) \mid \frac{32}{2}-\frac{1}{2}$

$2\left(n+\frac{32}{2}\right)\left(n-\frac{1}{2}\right)$

$2(n+16)(2n-1)$

5. $6r^2 - 10r - 24$

$A=3 \quad B=-5 \quad C=-12$

$2(3r^2-5r-12)$

$-36 \mid -5$

$2(18)$

$3(12)$

$4(9) \mid \frac{4}{3}-\frac{9}{3}$

$2\left(r+\frac{4}{3}\right)\left(r-\frac{9}{3}\right)$

$2(3r+4)(r-3)$

7. $14k^2 - 67k + 63$

$A = 14 \quad B = 67 \quad C = 63$

$882 \mid -67$

$14(63)$

$18(49) \mid -18 - 49$

$\frac{-18}{14} \quad \frac{-49}{14}$

$\left(k - \frac{18}{14}\right)\left(k - \frac{49}{14}\right)$

$\left(k - \frac{9}{7}\right)\left(k - \frac{7}{2}\right)$

$(7k - 9)(2k - 7)$

9. $3x^2 + 9x - 84$

$3(x^2 + 3x - 28)$

$A = 1 \quad B = 3 \quad C = -28$

$-28 \mid 3$

$4(7) \mid 7 - 4$

$\frac{7}{1} \quad \frac{-4}{1}$

$3(x + 7)(x - 4)$

11. $5t^2 - 24t - 5$

$A = 5 \quad B = -24 \quad C = -5$

$-25 \mid -24$

$25(1) \mid 1 - 25$

$\frac{1}{5} \quad \frac{-25}{5}$

$\left(t + \frac{1}{5}\right)\left(t - \frac{25}{5}\right)$

$(5t + 1)(t - 5)$

13. $8k^2 - 42k + 27$

$A = 8 \quad B = -42 \quad C = 27$

$216 \mid -42$

$8(27)$
$4(54)$
$3(72)$
$12(18)$
$6(36)$

$\frac{-6}{8} \quad \frac{-36}{8}$

$(k - \frac{6}{8})(k - \frac{36}{8})$

$(k - \frac{3}{4})(k - \frac{9}{2}) = (4k - 3)(2k - 9)$

15. $2c^2 - 23c + 11$

$A = 2 \quad B = -23 \quad C = 11$

$22 \mid -23$

$1(22) \mid -1 \quad -22$

$\frac{-1}{2} \quad \frac{-22}{2}$

$(c - \frac{1}{2})(c - \frac{22}{2})$

$(2c - 1)(c - 11)$