Chapter 5 Practice Exercises (Solutions at www.789adam.com)

Without looking back, write the Quadratic Formula.

For $ax^2+bx+c=0$ $\quad x = \dfrac{-b \pm \sqrt{b^2-4ac}}{2a}$

Multiply the Binomials

$(b+5)(b-3)$ $\quad (3y+2)(2y+5)$ $\quad (4-x)(3-2x)$ $\quad (k+7)(k-7)$

$b^2-3b+5b-15$ $\quad 6y^2+15y+4y+10$ $\quad 12-8x-3x+2x^2$ $\quad k^2-49$

$b^2+2b-15$ $\quad 6y^2+19y+10$ $\quad 2x^2-11x+12$

Looking for Common Factors: Factor these expressions

$4d+10$ $\quad 3z^2+6z$ $\quad 5x^2+10x-20$

$2(2d+5)$ $\quad 3z(z+2)$ $\quad 5(x^2+2x-4)$

Looking for Difference of Squares: Factor these expressions

x^2-49 $\quad 4a^2+9$ $\quad 100-9t^2$ $\quad 16v^2-81$ $\quad j^2+64$

$(x-7)(x+7)$ $\quad (2a+3)(2a-3)$ $\quad (10+3t)(10-3t)$ $\quad (4v+9)(4v-9)$ $\quad$ Prime

Looking for Perfect Square Trinomial: Factor these expressions

$m^2-8m+16$ $\quad 49a^2+56a+16$ $\quad 4f^2-4f+1$

$(m-4)^2$ $\quad (7a+4)^2$ $\quad (2f-1)^2$

Factoring by Trial & Error: Factor these expressions

n^2-4n+3 $\quad n^2+4n-21$ $\quad p^2+5p+6$ $\quad p^2+5p-6$

$1\ 1 \quad 1\ 3$ $\quad 1\ 1 \quad 1\ 21 \quad 3\ 7$ $\quad 1\ 1 \quad 1\ 6 \quad 2\ 3$ $\quad 1\ 1 \quad 1\ 6 \quad 2\ 3$

$(n-3)(n-1)$ $\quad (n+7)(n-3)$ $\quad (p+2)(p+3)$ $\quad (p+6)(p-1)$

$p^2 + 7p + 6$ $p^2 - 7p + 6$ $p^2 + 4p + 6$ $g^2 + 11g - 60$

$(p+6)(p+1)$ $(p-6)(p-1)$ Prime $(g+15)(g-4)$

$3e^2 + 5e + 2$ $3e^2 + e - 2$ $2h^2 + 5h - 12$ $2h^2 - 23h - 12$

$(e+1)(3e+2)$ ~~$(e-2)(3e+1)$~~ $(e+1)(3e-2)$ ~~$(h-4)(2h+3)$~~ $(h+4)(2h-3)$ $(h-12)(2h+1)$

$2x^2 + 9x - 12$ $6\theta^2 - 5\theta - 4$ $10t^2 + 23t + 12$ $8j^2 - 7j - 15$

Prime ~~$(2\theta+2)(3\theta-2)$~~ ~~$(2\theta-1)(3\theta+4)$~~ $(2\theta+1)(3\theta-4)$ $(2t+3)(5t+4)$ ~~$(2j+3)(4j-5)$~~ $(j+1)(8j-15)$

Solve by Factoring. Confirm that your solutions are correct.

$14 = x^2 - 5x$ $\$^2 + \$ - 12 = 0$ $m^2 - 8m + 16 = 0$ $v = 1 - 2v^2$ $(x-1)(x+2)(x-5) = 0$

$0 = x^2 - 5x - 14$ $(\$+4)(\$-3) = 0$ $(m-4)(m-4) = 0$ $2v^2 + v - 1 = 0$ $x-1=0$ or $x+2=0$ or $x-5=0$

$0 = (x-7)(x+2)$ $\$+4=0$ or $\$-3=0$ $m-4=0$ $(2v-1)(v+1)=0$ $x=1$ or $x=-2$ or $x=5$

$x-7=0$ or $x+2=0$ $\$=-4$ or $\$=+3$ $m=4$ $2v-1=0$ or $v+1=0$

$x=7$ or $x=-2$ $\{-4, 3\}$ $v=\frac{1}{2}$ or $v=-1$

$\{-2, 7\}$ $\{-1, \frac{1}{2}\}$ $\{-2, 1, 5\}$

Calculate the Discriminant. Then, use the Quadratic Formula to solve, if possible.

$1 = w^2 - 3w$ $-9 = u^2 + 6u$ $y^2 - 2y + 2 = 0$ $5a = -a^2 + 10$

$w^2 - 3w - 1 = 0$ $u^2 + 6u + 9 = 0$ $D = (-2)^2 - 4(1)(2)$ $a^2 + 5a - 10 = 0$

$D = (-3)^2 - 4(1)(-1) = 13$ $D = 6^2 - 4(1)(9) = 0$ $= -4$ $D = 5^2 - 4(1)(-10) = 15$

$w = \frac{3 \pm \sqrt{13}}{2}$ $u = \frac{-6 \pm \sqrt{0}}{2}$ No Solution $a = \frac{-5 \pm \sqrt{15}}{2}$

$u = \frac{-6}{2}$ $\emptyset$

$u = 3$

Solve by any method you choose.

$x^2 - 8x + 7 = 0$

$(x-7)(x-1) = 0$

$x-7=0$ or $x-1=0$

$x = 7$ or $x = 1$

$\{1, 7\}$

$k^2 + 5 = 5k$

$k^2 - 5k + 5 = 0$

$k = \frac{5 \pm \sqrt{25-4(1)(5)}}{2}$

$k = \frac{5 \pm \sqrt{5}}{2}$

$60q^2 - 83q + 5 = 50$

$60q^2 - 83q - 45 = 0$

$q = \frac{83 \pm \sqrt{(-83)^2 - 4(60)(-45)}}{2(60)}$

$q = \frac{83 \pm \sqrt{17689}}{120}$

$q = \frac{83 \pm 133}{120}$

$q = \frac{216}{120} = \frac{9}{5}$ or $\frac{-50}{120} = \frac{-5}{12}$

$2x^2 - 7x + 7 = 0$

$D = -7$

$\emptyset$

Without looking back, write the Quadratic Formula. (You knew this was coming!)

For $ax^2 + bx + c = 0$,

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$