Applied Technical Math 11/15

Warm Up IXL 8th Grade Z.13

Solving Quadratic Equations

I can solve quadratic equations by factoring and by the square root property

Ex. 1 Factor each expression completely

A. $6b^2 - 31b + 18$

$(2b - 9)(3b - 2)$

$2b - 9 = 0$ $\quad$ $3b - 2 = 0$

$+9 \quad +9$ $\quad$ $+2 \quad +2$

$\frac{2b}{2} = \frac{9}{2}$ $\quad$ $\frac{3b}{3} = \frac{2}{3}$

$b = 9/2$ or $b = 2/3$

B. $12z^2 + 5z - 72$

1 12
2 6
3 4

1 72
2 36

$(3z + 8)(4z - 9)$

3 24
4 18
6 12
8 9

-27
$+32$
$+5$

$3z + 8 = 0$ $\quad$ $4z - 9 = 0$

$-8 \quad -8$ $\quad$ $+9 \quad +9$

$\frac{3z}{3} = \frac{-8}{3}$ $\quad$ $\frac{4z}{4} = \frac{9}{4}$

$z = -8/3$ or $z = 9/4$

I can solve quadratic equations by factoring and by the square root property

Ex. 2 Factor each expression completely

A. $\frac{60k^2}{2} - \frac{216k}{2} + \frac{192}{2}$

$\frac{30k^2}{2} - \frac{108k}{2} + \frac{96}{2}$

$\frac{15k^2}{3} - \frac{54k}{3} + \frac{48}{3}$

$5k^2 - 18k + 16$

$(1k - 2)(5k - 8)$

$+2 \quad +8$

$k = 2 \qquad \frac{5k}{5} = \frac{8}{5}$

$k = 8/5$

B. $\frac{24z^2}{12} + \frac{60z}{12} - \frac{144}{12}$

$2z^2 + 5z - 12$

$(1z + 4)(2z - 3)$

$+8z$

$-3z$

$z + 4 = 0 \qquad 2z - 3 = 0$

$-4 \qquad +3 \quad +3$

$z = -4 \qquad \frac{2z}{2} = \frac{3}{2}$

or

$z = 3/2$

I can solve quadratic equations by factoring and by the square root property

Ex. 3 Factor each expression completely

A. $6p^2 + 31p + 35$

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

$+10p$
$+21p$

$2p + 7 = 0$ $\quad$ $3p + 5 = 0$

$-7 \quad -7$ $\quad$ $-5 \quad -5$

$\frac{2p}{2} = \frac{-7}{2}$ $\quad$ $\frac{3p}{3} = \frac{-5}{3}$

$p = -7/2$ or $p = -5/3$

B. $\frac{20p^2}{2} + \frac{2p}{2} - \frac{6}{2}$

$10p^2 + p - 3$

$(2p - 1)(5p + 3)$

$-5p$
$+6p$

$2p - 1 = 0$ $\quad$ $5p + 3 = 0$

$+1 \quad +1$ $\quad$ $-3 \quad -3$

$\frac{2p}{2} = \frac{1}{2}$ $\quad$ $\frac{5p}{5} = \frac{-3}{5}$

$p = \frac{1}{2}$ or $p = -3/5$

I can solve quadratic equations by factoring and by the square root property

Ex. 4 Factor each expression completely

A. $\frac{12x^2}{4} + \frac{40x}{4} + \frac{28}{4}$

$3x^2 + 10x + 7$

$(3x + 7)(x + 1)$

$+7x$
$+3x$

$3x + 7 = 0$ $\quad x + 1 = 0$

$-7 \quad -7$ $\quad -1 \quad -1$

$\frac{3x}{3} = \frac{-7}{3}$ $\quad x = -1$

$x = -\frac{7}{3}$ or $x = -1$

B. $\frac{12c^2}{2} + \frac{46c}{2} + \frac{42}{2}$

$6c^2 + 23c + 21$

$(3c + 7)(2c + 3)$

$+14c$
$+9c$

$3c + 7 = 0$ $\quad 2c + 3 = 0$

$-7 \quad -7$ $\quad -3 \quad -3$

$\frac{3c}{3} = \frac{-7}{3}$ $\quad \frac{2c}{2} = \frac{-3}{2}$

$c = -\frac{7}{3}$ or $c = -\frac{3}{2}$

I can solve quadratic equations by factoring and by the square root property

Ex. 5 Factor each expression completely

A. $\frac{10b^2}{2} + \frac{16b}{2} - \frac{42}{2}$

$5b^2 + 8b - 21$

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

$-7b$

$+15b$

$5b - 7 = 0$ $\quad +7 \quad +7$

$\frac{5b}{5} = \frac{7}{5}$

$b = 7/5$

$b + 3 = 0$ $\quad -3 \quad -3$

$b = -3$

$b = 7/5$ or $b = -3$

B. $\frac{48b^2}{4} - \frac{44b}{4} - \frac{224}{4}$

$12b^2 - 11b - 56$

$(3b - 8)(4b + 7)$

$-32b$

$+21b$

$3b - 8 = 0$ $\quad +8 \quad +8$

$\frac{3b}{3} = \frac{8}{3}$

$b = 8/3$

$4b + 7 = 0$ $\quad -7 \quad -7$

$\frac{4b}{4} = \frac{-7}{4}$

$b = -7/4$

$b = 8/3$ or $b = -7/4$

I can solve quadratic equations by factoring and by the square root property

Hmwk Wkst

IXL Algebra 1 BB.7