## Algebra RH

## Unit 14: Solving Quadratic Equations Practice

## Do Now:

Are these polynomials perfect square trinomials?
A. $x^{2}-6 x+12$
B. $\mathrm{x}^{2}-\frac{8}{7} \mathrm{x}+\frac{16}{49}$

No, (-6/2) $)^{2}$ does not equal 12.
Yes, $-8 / 7 \div 2=-4 / 7$ and $(-4 / 7)^{2}=16 / 49$.

| 1. What are the solutions of $(x-11)(x+15)=0$ ? | 2. Find the solutions of $x^{2}-13 x=0$. |
| :---: | :---: |
| $\begin{array}{l\|l} x-11=0 & x+15=0 \end{array}$ | $x(x-13)=0$ |
| $x=11 \quad x=-15$ | $x=0 \quad x-13=0$ |
| \{ 11, -15 \} | x $x=13$ |
|  | \{ 0,13 \} |
| 3. Find the solutions of $\frac{x-4}{x-5}=\frac{x}{3}$. $\begin{gathered} x^{2}-5 x=3 x-12 \\ x^{2}-8 x+12=0 \\ \begin{array}{c} (x-6)(x-2) \\ x-6=0 \\ x=6 \end{array} \\ x-2=0 \\ \{6,2\} \end{gathered}$ | 4. Solve for $x$ : $\begin{aligned} 9 x^{2} & =27 \\ x^{2} & =3 \\ x & = \pm \sqrt{3} \end{aligned}$ |
| 5. Solve for $x: 36 x^{2}=841$. $\begin{aligned} x^{2} & =\frac{841}{36} \\ x & = \pm \frac{29}{6} \end{aligned}$ | 6. Solve for $x: 7 x^{2}=42 x-35$. $\left.\begin{array}{r} 7 x^{2}-42 x+35=0 \\ 7\left(x^{2}-6 x+5\right)=0 \\ 7(x-5)(x-1)=0 \\ \hline x-5=0 \\ x=5 \end{array} \right\rvert\, \begin{array}{r} x-1=0 \\ x=1 \end{array}$ $\{5,1\}$ |

7. Solve by factoring: $x^{2}+x=12$.

$$
\begin{gathered}
\left.\begin{array}{r}
(x+4)(x-3)=0 \\
x+4=0 \\
x=-4
\end{array}\right) x-3=0 \\
x=3 \\
\{-4,3\}
\end{gathered}
$$

8. Solve by completing the square:

$$
\begin{gathered}
x^{2}-8 x+13=0 \\
x^{2}-8 x+\ldots=-13+\ldots \\
x^{2}-8 x+16=-13+16 \\
(x-4)^{2}=3 \\
x-4= \pm \sqrt{3} \\
x=4 \pm \sqrt{3}
\end{gathered}
$$

## Quadratic formula

9. Find the values of $a, b$, and $c$ for $4 x^{2}+7=11 x$.

$$
\begin{gathered}
4 x^{2}-11 x+7=0 \\
a=4 \quad b=-11 \quad c=7
\end{gathered}
$$

10. Use the quadratic formula to solve:

$$
\begin{aligned}
& \begin{array}{l}
a=2 \\
b=-8 \\
c=-3
\end{array} \\
& x=\frac{2 x^{2}-8 x=3}{} \\
& x=\frac{-(-8) \pm \sqrt{(-8)^{2}-4(2)(-3)}}{2(2)} \\
& x=\frac{8 \pm \sqrt{88}}{4} \\
& x=\frac{8 \pm 2 \sqrt{22}}{4} \\
& x=\frac{4 \pm \sqrt{22}}{2}
\end{aligned}
$$

