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Algebra 1 - Downing

Review: Factor: $\sqrt{\left(\frac{3x^3}{3x^2} - \frac{6x^2}{3x^2} - \frac{5x+10}{-5} - \frac{5}{-5}\right)}$ *GCF is 1, Factor by Grouping

$$3x^2(x-2) - 5(x-2)$$

$$\boxed{(3x^2-5)(x-2)}$$

7.5 B - Factoring Trinomials

Standard form of a Quadratic Trinomial: ax^2+bx+c Factoring ax^2+bx+c (split the middle) a, b, c are real numbers

Steps	Example	$a \neq 0$
1) Factor out GCF (if necessary)	Ex) Factor: $-4x^2 - 8x + 5$ GCF is 1	$a \cdot c = -20$
2) Multiply $a \cdot c$. Then, find factors of " ac " that add up to equal " b "	$\downarrow \quad \swarrow \quad \downarrow$ $\left(\frac{-4x^2+2x}{-2x} \right) \left(\frac{-10x+5}{-5}\right)$ $-2x(2x-1) - 5(2x-1)$	$\begin{array}{r} 1 \overline{) -20} \\ 2 \overline{) -10} \\ 4 \overline{) -5} \end{array} = -8$
3) Split " b " into the factors found in step 2	$\left(\frac{-2x-5}{-1} \right) \left(\frac{2x-1}{-1}\right)$ $\boxed{-1(2x+5)(2x-1)}$	
4) Factor by Grouping		
5) Check binomials for GCF		

Ex) Factor $2x^2 - 5x - 7$

$$\begin{array}{ccc} a & b & c \\ \downarrow & \swarrow & \downarrow \\ \left(\frac{2x^2+2x}{2x} \right) & \left(\frac{-7x-7}{-7} \right) & \\ 2x(x+1) & -7(x+1) & \end{array}$$

$$\boxed{(2x-7)(x+1)}$$

$a \cdot c = -14$

$$\begin{array}{r} 1 \overline{) -14} \\ 2 \overline{) -7} \end{array} = -5$$

$$\text{Ex) } \frac{5x^2}{5} + \frac{15x}{5} + \frac{10}{5}$$

$$\textcircled{5}(x^2 + 3x + 2)$$

$$\begin{array}{ccc} \downarrow & \wedge & \downarrow \\ (x^2 + 1x) & + & (2x + 2) \\ \downarrow & & \downarrow \\ x(x+1) & + & 2(x+1) \end{array}$$

$$\textcircled{5(x+2)(x+1)}$$

$$\begin{array}{r} a \cdot c \\ 2 \\ \hline 1 \ 2 = 3 \end{array}$$

HW: pg. 395 #14-18 Online