

9-23-19 1<sup>st</sup> Trig

$$\textcircled{1} \quad x+2 \sqrt{x^2+10}$$

Rewrite

$$\begin{array}{r} x-2+\frac{14}{x+2} \\ \hline x+2 \sqrt{x^2+0x+10} \\ \quad - (x^2+2x) \\ \hline \qquad -2x+10 \\ \qquad - (-2x-4) \\ \hline \qquad \qquad \qquad 14 \end{array}$$

$$\textcircled{2} \quad \text{Factor } x^2-36$$

$$(x-6)(x+6)$$

$$\textcircled{3} \quad \text{Factor } 8x^3-27y^3$$

$$(2x-3y) \overset{S}{\underset{O}{\underset{F}{\underset{A}{\underset{S}}{}}}} (4x^2+6xy+9y^2)$$

$$\textcircled{4} \quad \text{Factor } (4x^3+40x^2)(3x-30)$$

$$4x^2(x+10) + -3(x+10)$$

$$(x+10)(4x^2-3)$$

⑤ Factor  $3x^2 + 11x + 10$

$$\begin{array}{l}
 13x (x+1)(3x+10) \quad \frac{3}{1,3} \quad \frac{10}{1,10} \\
 31x (x+10)(3x+1) \quad \frac{10}{2,5} \\
 11x (x+2)(3x+5) \checkmark \\
 (x+5)(3x+2)
 \end{array}$$

⑥ Factor  $6x^2 - 19x - 20$

$$\begin{array}{l}
 6,20 (x-1)(6x-20) \quad \frac{6}{1,6} \quad \frac{20}{1,20} \\
 20,1 (x-20)(6x-1) \quad \frac{20}{2,10} \\
 12,10 (x-2)(6x-10) \quad \frac{10}{4,5} \\
 60,2 (x-10)(6x-2) \\
 24,5 (x-4)(6x+5) \checkmark \\
 (x-5)(6x+4) \\
 (2x-)(3x-) \\
 \downarrow
 \end{array}$$

⑦ Factor  $10n^3y + 20ny^2$

$$10ny(n^2 + 2y)$$

⑧ Factor  $x^2 - 64$

$$(x-8)(x+8)$$

⑨ Simplify  $\frac{x^2 - 4}{x^2 + 8x + 12}$

$$\begin{array}{l}
 \frac{\cancel{(x+2)}(x-2)}{\cancel{(x+2)}(x+6)} \\
 \frac{x-2}{x+6} \quad [x \neq -2]
 \end{array}$$

$x+2 \neq 0$   
 $-2-2$   
 $x \neq -2$

9-23-19

Factor these bad boys:

$$\textcircled{1} \quad 8x^3 - 125y^3$$
$$(2x - 5y) (4x^2 + 10xy + 25y^2)$$

S      O      F      A      S

$$\textcircled{2} \quad 10x^3y - 20x^2y^2$$

$$10x^2y(x - 2y)$$

$$\textcircled{3} \quad x^2 - 16$$
$$(x - 4)(x + 4)$$

<u>Diff</u>	16
15	1, 16
6	2, 8
0	<u>-4, 4</u>

$$\textcircled{4} \quad (4x^3 + 40x^2) + (-3x - 30)$$
$$4x^2(x + 10) - 3(x + 10)$$

$$(x + 10)(4x^2 - 3)$$

$$\textcircled{5} \quad x^2 - 4x - 12$$
$$(x + 2)(x - 6)$$

<u>Diff</u>	12
11	1, 12
4	+2, 6
1	3, 4

$$\textcircled{6} \quad 6x^2 - 19x - 20$$

6,20	(x 1)(6x 20)	$\frac{6}{1,6}$	$\frac{20}{1,20}$
120,1	(x 20)(6x 1)	2,3	2,10
10,12	(x 2)(6x 10)		4,5
60,2	(x 10)(6x 2)		
24,5	(x - 4)(6x + 5) ✓		
	(x 5)(6x 4)		
	(2x 1)(3x 20)		

↓

$$\textcircled{7} \quad x+2 \overline{) x^2 + 20}$$

$$\begin{array}{r} x-2 + \frac{24}{x+2} \\ x+2 \overline{) x^2 + 0x + 20} \\ \underline{-(x^2 + 2x)} \phantom{0} \\ -2x + 20 \\ \underline{-(-2x - 4)} \\ 24 \end{array}$$

$$\textcircled{8} \quad \text{simplify } \frac{x^2 - 25}{x^2 + 7x + 10}$$

$$\frac{(x-5)\cancel{(x+5)}}{(x+2)\cancel{(x+5)}}$$

$$\frac{x-5}{x+2} \quad [x \neq -5]$$

$$\begin{array}{r} x+5 \neq 0 \\ -5 \quad -5 \\ \hline x \neq -5 \end{array}$$

9-23-19 4<sup>th</sup> Tr:y

Factor these problems:

$$\textcircled{1} \quad 27x^3 - 1000y^3$$

$$(3x - 10y) \overset{S}{(9x^2} + \overset{O}{30xy} + \overset{FAS}{100y^2})$$

$$\textcircled{2} \quad 10x^3 + 20x$$

$$10x(x^2 + 2)$$

$$\textcircled{3} \quad x^2 - 25 \quad \begin{array}{l} 1,25 \\ 5,5 \end{array}$$
$$(x-5)(x+5)$$

$$\textcircled{4} \quad (4x^3 + 40x^2) + (-3x - 30)$$

$$4x^2(x+10) + -3(x+10)$$

$$(x+10)(4x^2 - 3)$$

$$\textcircled{5} \quad 6x^2 - 19x - 20$$

6, 20	(x 1)(6x 20)	$\frac{6}{1, 6}$	$\frac{20}{1, 20}$
120, 1	(x 20)(6x 1)	$\frac{6}{2, 3}$	$\frac{20}{2, 10}$
12, 10	(x 2)(6x 10)		$\frac{20}{4, 5}$
60, 2	(x 10)(6x 2)		
-24, 5	(x - 4)(6x + 5) ✓		
	(x 5)(6x 4)		
	(2x 1)(3x 20)		

↓

$$\textcircled{6} \quad x+2 \sqrt{x^2 - 10}$$

$$x+2 \sqrt{x^2 + 0x - 10}$$

$$\begin{array}{r} x-2 + \frac{-6}{x+2} \\ \underline{-(x^2 + 2x)} \phantom{-10} \\ -2x - 10 \\ \underline{-(-2x - 4)} \\ -6 \end{array}$$

$$\textcircled{7} \quad \text{Simplify } \frac{x^2 - 25}{x^2 + 7x + 10}$$

$$\frac{\cancel{(x+5)}(x-5)}{(x+2)\cancel{(x+5)}}$$

$$\frac{x-5}{x+2} \quad [x \neq -5]$$

$$\begin{array}{r} x+5 \neq 0 \\ -5 \quad -5 \\ \hline x \neq -5 \end{array}$$