

9-9-19 1st Trig

① Factor $x^3 - 27$

SOFAS

$$(x - 3)(x^2 + 3x + 9)$$

S - square 1st term

O - opposite sign

F - Fuse together

A - always add

S - square 2nd term

② $x^3 + 125$

$$(x + 5)(x^2 - 5x + 25)$$

③ $8x^3 - 343$

$$(2x - 7)(4x^2 + 14x + 49)$$

$$\sqrt[3]{343} = 343^{1/3}$$

$$\textcircled{4} \quad 1000x^3 - y^3$$

$$(10x - y) \overset{S}{(100x^2 + 10xy + y^2)} \overset{O}{+} \overset{F}{10xy} \overset{A}{+} \overset{S}{y^2}$$

$$\textcircled{5} \quad 27n^3 - 64y^3$$

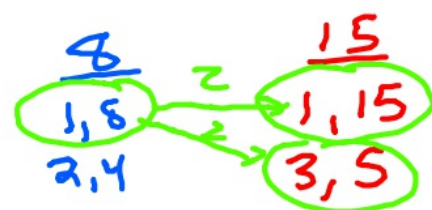
$$(3n - 4y) \overset{S}{(9n^2 + 12ny + 16y^2)} \overset{O}{+} \overset{F}{12ny} \overset{A}{+} \overset{S}{16y^2}$$

$$\textcircled{6} \quad 8n^3 + 729b^3$$

$$(2n + 9b) \overset{S}{(4n^2 - 18nb + 81b^2)} \overset{O}{-} \overset{F}{18nb} \overset{A}{+} \overset{S}{81b^2}$$

List all possibilities for

$$8n^2 + \square n + \underline{15}$$



$$23n (n + 1)(8n + 15)$$

$$121n (n + 15)(8n + 1)$$

$$24n (n + 3)(8n + 5)$$

$$43n (n + 5)(8n + 3)$$

$$34n (2n + 1)(4n + 15)$$

$$62n (2n + 15)(4n + 1)$$

$$22n (2n + 3)(4n + 5)$$

$$26n (2n + 5)(4n + 3)$$

9-9-19 3rd Trig

① Factor $x^3 - 27$

$$(x - 3) \left(\overset{S}{x^2} + \overset{O}{3x} + \overset{A}{9} \right)$$

S - square 1st term

O - opposite sign

F - fuse 2 terms (multiple)

A - Always add

S - square 2nd term

② $x^3 + 125$

$$(x + 5) \left(\overset{S}{x^2} - \overset{O}{5x} + \overset{A}{25} \right)$$

$$125^{(1/3)}$$

③ $8x^3 - 343$

$$(2x - 7) \left(\overset{S}{4x^2} + \overset{O}{14x} + \overset{A}{49} \right)$$

$$\textcircled{4} \quad 1000x^3 - y^3$$
$$(10x - y) \left(100x^2 + 10xy + y^2 \right)$$

(Note: In the original image, the terms 100, 10, and y^2 in the second factor are labeled with red 'S', 'O', and 'A' respectively, and the minus sign is crossed out.)

$$\textcircled{5} \quad 125x^3 + 27y^3$$
$$(5x + 3y) \left(25x^2 - 15xy + 9y^2 \right)$$

(Note: In the original image, the terms 25, 15, and 9 in the second factor are labeled with red 'S', 'O', and 'A' respectively.)

Give all possible combinations

$$\underline{8}x^2 + \square x + 15$$

$$\begin{array}{r} 8 \\ \hline 1, 8 \\ 2, 4 \end{array} \begin{array}{l} \xrightarrow{2} 1, 15 \\ \xrightarrow{2} 3, 5 \end{array} \quad \begin{array}{r} 15 \\ \hline \end{array}$$

$$23x(x+1)(8x+15)$$

$$121x(x+15)(8x+1)$$

$$24x(x+3)(8x+5)$$

$$43x(x+5)(8x+3)$$

$$34x(2x+1)(4x+15)$$

$$62x(2x+15)(4x+1)$$

$$22x(2x+3)(4x+5)$$

$$26x(2x+5)(4x+3)$$

9-9-19

4th Trj

① $x^3 - 64$

$(x - 4) (x^2 + 4x + 16)$
S O F A S

S → square 1st term

O → opposite sign

F → fuse (multiply the 2 terms)

A → always add

S → square 2nd term

$$\sqrt[3]{729} = 729^{1/3}$$

② Factor $x^3 - 27$

$(x - 3) (x^2 + 3x + 9)$
S O F A S

③ Factor $8x^3 - 125$

$(2x - 5) (4x^2 + 10x + 25)$
S O F A S

④ Factor $8x^3 - 27y^3$
 $(2x - 3y) (4x^2 + 6xy + 9y^2)$

S O F A S

⑤ Factor $1000x^3 + y^3$
 $(10x + y) (100x^2 - 10xy + y^2)$

S O F A S

$$\underline{8}x^2 + \square x + \underline{15}$$

$$\begin{array}{l} \underline{8} \\ \text{1, 8} \\ \text{2, 4} \end{array} \begin{array}{l} \xrightarrow{2} \\ \xrightarrow{2} \end{array} \begin{array}{l} \underline{15} \\ \text{1, 15} \\ \text{3, 5} \end{array}$$

$$23x(x+1)(8x+15)$$

$$121x(x+15)(8x+1)$$

$$29x(x+3)(8x+5)$$

$$43x(x+5)(8x+3)$$

$$34x(2x+1)(4x+15)$$

$$62x(2x+15)(4x+1)$$

$$22x(2x+3)(4x+5)$$

$$26x(2x+5)(4x+3)$$