9-19-13
3rd Trig

Factor By Grouping

① $(x^3+7x^2)+(2x+14)$

$x^2(x+7)+2(x+7)$

$(x+7)(x^2+2)$

② $(2x^3-8x)+(3x^2-12)$

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

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

↓

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

③ $(x^3-2x^2)+(5x-10)$

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

Not factorable

④ $(x^2+2xy)+(-8xy+16y^2)$

$x(x+2y)+-8y(x-2y)$

Not factorable

⑤ $(xy+3y)+(x+3)$

$y(x+3)+1(x+3)$

$(x+3)(y+1)$

SAT

How many integers from the set of all integers from 1 to 100 inclusive are NOT the square of an integer?

Take out

1, 4, 9, 16, 25, 36, 49, 64, 81, 100

10 #s

So 100 − 10 = 90 ✓

If A is the least positive 4-digit number with non-zero digits, none of which is repeated, and B is the greatest of such positive integers, then B − A = ?

smallest A = 1234

largest B = 9,876

$$\begin{array}{r} 9876 \\ -\,1234 \\ \hline 8642 \end{array}$$

Simplify $(3^4 \cdot 3^5)^{10}$

$3^4 = 3 \cdot 3 \cdot 3 \cdot 3$ $\quad 3^5 = 3 \cdot 3 \cdot 3 \cdot 3 \cdot 3$

$(3^9)^{10}$

3^{90}

Blue, Red, Green, Orange

4 8 16

Which light is in the 59th spot?

$\frac{59}{4} = 14.75$

56 $14 \times 4 = 56$

Green

9-19-13

4th Trig

Factoring by Grouping

① $(x^3+7x^2)+(2x+14)$

$x^2(x+7)+2(x+7)$

$(x+7)(x^2+2)$

② $(5x^2+x)+(35x-7)$

$x(5x+1)+-7(5x+1)$

$(5x+1)(x-7)$

③ $(xy+3y)+(5x+15)$

$y(x+3)+5(x+3)$

$(x+3)(y+5)$

④ $(x^2+2x)+(3x+6)$

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

Not factorable

⑤ $(x^3-4x)+(5x^2-20)$

$x(x^2-4)+5(x^2-4)$

$(x^2-4)(x+5)$

$\downarrow$

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

SAT

How many integers from the set of all integers between 1 and 100 inclusive are NOT the square of an integer?

Squares → 1, 4, 9, 16, 25, 36, 49, 64, 81, 100

$100 - 10 = 90$

If A is the least positive 4 digit integer with nonzero digits, none of which is repeated, and B is the greatest of such positive integers, then B - A = ?

A = 1 2 3 4 B = 9 8 7 6

$$\begin{array}{r} 9876 \\ -1234 \\ \hline 8642 \end{array}$$