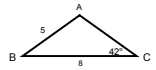
A) Find the measure of <A



Law of Sines

$\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$

ASS

$\frac{\sin 42}{5} = \frac{\sin A}{8}$

$8\sin 42 = 5\sin A$

$\frac{8\sin 42}{5} = \sin A$

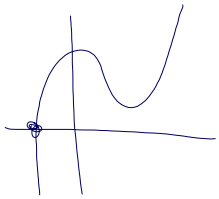
$1.0706 = \sin A$

∴ No triangle can be formed

B) How many zeros does $f(x) = 4x^3 - 6x^2 - 2x + 7$ have? ~~3~~ 1

x-int

Find f(2) = 11 Identify the y-int of f(x) = 7



$f(2) = 4(2)^3 - 6(2)^2 - 2(2) + 7$

$= 32 - 24 - 4 + 7$

$= 11$

y-int: let x = 0

$= 0 + 0 - 0 + 7$

C) Given (m) $y = 5x - 3$ and n : $2x + 3y = 6$ → $3y = -2x + 6$ → $y = \frac{-2}{3}x + 2$

Are m and n perpendicular? X/O Find the slope of n? $-2/3$

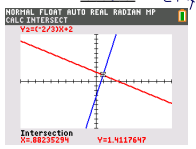
Solve the system of equations for m and n: (.882, 1.41)

Where does m cross the x-axis: 3/5 let y = 0

$0 = 5x - 3$

$3 = 5x$

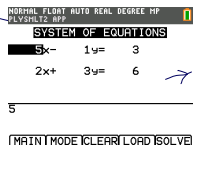
$x = \frac{3}{5}$

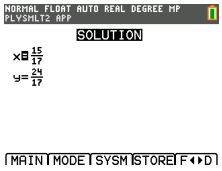


Simul Equ. Solve

$5x - y = 3$

$2x + 3y = 6$





D) Given $u_n = 21, 18, 15, 12, 9, ...$

Is the above sequence geometric, arithmetic, or neither? $d = -3$

Write the explicit equation for the sequence: $a_n = 24 - 3n$

Find the 64th term ? −168

Find the sum of the first 100 → −12750

difference

$a_n = a_1 + d(n-1)$

first term

$a_{64} = 24 - 3(64)$

$= -168$

$a_n = 21 - 3(n-1)$

$a_n = 21 - 3n + 3$

$a_n = 24 - 3n$

$S_n = \frac{n}{2}(a_1 + a_n)$

$n = 100 \quad a_1 = 21 \quad a_{100} = -276$

$S_{100} = \frac{100}{2}(21 + -276)$

$= -12750$

E) The population of Wileyburg at the end of 2013 is 100 peeps and is growing geometrically. It grows to a population of 150 at the end of 2014. Find the population at the end of year 2018.

geometric explicit

$g_n = g_1 \cdot r^{n-1}$

$(1, 100)^{2013}$

$(2, 150)^{2014}$

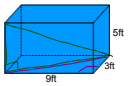
$(6, \ )^{2018}$

$r = \frac{150}{100} = 1.5$

$g_n = 100 \cdot 1.5^{n-1}$

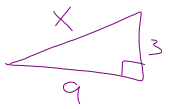
$g_6 = 100 \cdot 1.5^{6-1}$

$g_6 = 100 \cdot 1.5^5 = 759.375$



Find the length of longest rod to fit on bottom of rectangular prism: $\sqrt{90}$ ft. 9.49 ft.

Find the length of the longest rod to fit in the rectangular prism: $\sqrt{115}$ ft. 10.7 ft.

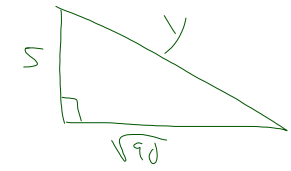


$x^2 = 3^2 + 9^2$

$x^2 = 90$

$x = \sqrt{90}$

11



$y^2 = 5^2 + (\sqrt{90})^2$

$y^2 = 115$

$y = \sqrt{115}$