

- 1) Find all solutions to the equation $2\sin^2 x - 3\sin x = 2$ on the interval $0 \leq x \leq 2\pi$
- 2) Find all the solutions to the equation $x^3 - 8x^2 + 19x - 14 = 0$ (give exact answers)
- 3) The angle of depression from the top of one building to the foot of a building across the street is 63 degrees. The angle of depression to the top of the same building is 33 degrees. The two buildings are 40 feet apart. What is the height of the shorter building?
- 4) Solve the system:
$$\begin{aligned}x + y &= 1 \\ x^2 + 3y^2 &= 21\end{aligned}$$

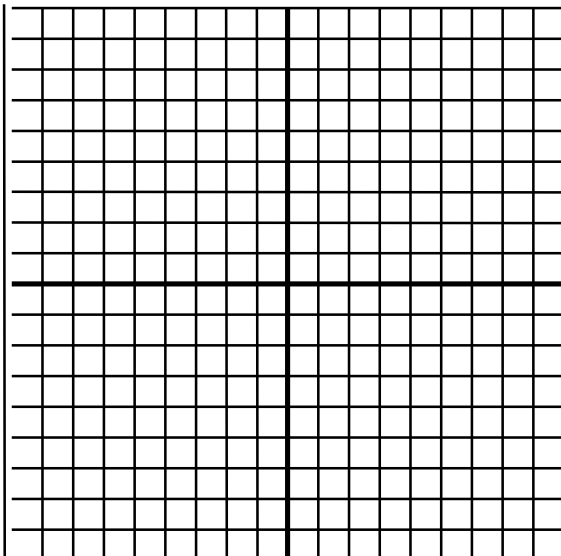
5) Find the sum of the first 150 terms of the sequence: 23, 30, 37, 44, 51.....

6) Find the Partial Fraction Decomposition of: $\frac{x-11}{2x^2+x-3}$

7) Solve for t: a) $3000 = 1000e^{.07t} - 500$

b) $\log_4(x+2) = 2 - \log_4(x-4)$

8) Graph the solution to the system of inequalities:
 $12x + 6y \geq 12$
 $y < x$



Answers:

1) $\frac{7\pi}{6}$ and $\frac{11\pi}{6}$

2) $x = 2$, $x = 3 \pm \sqrt{2}$

3) About 52.5 feet tall

4) $(3, -2)$ and $(-3/2, 5/2)$

5) 81675

6) $\frac{5}{2x+3} + \frac{-2}{x-1}$

7) a) $t \approx 17.9$ b) $x = 6$

8) Graph is two lines intersecting at $(2/3, 2/3)$ Area shaded is on the right side of the intersection point (vertices)