1. Express sin 3x + sin 7x as a product of sines and/or cosines of positive multiples of x.
2. Draw a sketch and use it to express $\sqrt{3}\cos(x -\sin(x ))$as a single cosine with a phase displacement.
3. Use the result from #2 to solve: $\sqrt{3}\cos(x -\sin(x ))=1.5$
4. Transform this product into a sum: ***y = 2 cos 19x cos x***
5. Solve cos 2θ + cosθ = 1 algebraically for θ ϵ [-100°, 850°]. (Transform cos 2θ so that it involves only cos θ.)
6. Use the double argument property, cos 2*x* = 1 − 2 sin2 *x,* to express cos 120° in terms of sin 60°.
7. Use the composite argument property for cosine to transform ***y* = 4 cos (*θ −* 60°)** to a linear combination of cos *θ* and sin *θ*.
8. If sin θ = $\frac{-4}{5}$, and θ ϵ [270°, 360°], find sin 2θ and sin $\frac{θ}{2}$.
9. Write the equation for the following graphs:



