

Calculator Section

1. A meteorologist measures the angle of elevation of a weather balloon as 41° . A radio signal from the balloon indicates that it is 1503m from his location. How far above the ground is the balloon?
2. Miguel looks out from the crown of the Statue of Liberty about 250 ft above ground. He sights a ship coming into NY harbor and the angle of depression is 18° . What is the distance from the statue to the ship?
3. The Americans with Disabilities Act states that wheelchair ramps can have a slope no greater than $\frac{1}{12}$. Find the angle of elevation of a ramp with this slope.

Non-Calculator Section

Find an algebraic expression equivalent to given expression

4. $\cos(\sin^{-1} 2x)$ 5. $\tan(\cos^{-1} 3x)$

Describe the transformations. Graph, give D + R

6. $f(x) = 2\sin^{-1}\left(\frac{x}{3}\right)$ 7. $f(x) = 5\cos^{-1}(4x)$ 8. $f(x) = \frac{1}{2}\tan^{-1}(2x)$

Find the exact value of the composition

9. $\cos^{-1}(\sin \frac{\pi}{4})$ 10. $\sin(\tan^{-1} -\sqrt{3})$

Find the exact value of y .

11. $y = \tan^{-1}(-1)$ 12. $y = \sin^{-1}\left(-\frac{1}{2}\right)$ 13. $y = \cos^{-1}\left(\frac{1}{2}\right)$