

f r q

Part A

19.

The functions g and h are given by

$$g(x) = \log_4(2x)$$

$$h(x) = \frac{(e^x)^5}{e^{(1/4)}}.$$

- (i) Solve $g(x) = 3$ for values of x in the domain of g .
- (ii) Solve $h(x) = e^{(1/2)}$ for values of x in the domain of h .

Part B

The functions j and k are given by

$$j(x) = \log_{10}(x + 1) - 5 \log_{10}(2 - x) + \log_{10} 3$$

$$k(x) = \sec x - \cos x.$$

- (i) Rewrite $j(x)$ as a single logarithm base 10 without negative exponents in any part of the expression. Your result should be of the form $\log_{10}(\text{expression})$.
- (ii) Rewrite $k(x)$ as a product involving $\tan x$ and $\sin x$ and no other trigonometric functions.

Part C

The function m is given by

$$m(x) = 2 \tan^{-1}(\sqrt{3}\pi x).$$

Find all values in the domain of m that yield an output value of $\sin^{-1}\left(\frac{\sqrt{3}}{2}\right)$.

Part A

Select a point value to view scoring criteria, solutions, and/or examples to score the response.



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The student response includes both of these criteria.

- Solution to $g(x) = 3$