

Math 181 Honors Quiz 6 Version A

1. A new branch bank is to have a floor area of 1280 ft^2 . It is to be a rectangle with three solid brick walls and a decorative glass front. The glass costs 1.5 times as much as the brick wall per linear foot. What dimensions of the building will minimize the cost of materials for the walls and front?

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2. Find the following derivatives:

(i) $\frac{d}{dx} \sin(1 + x^2)$

(ii) $\frac{d}{dx} \arcsin\left(\frac{1}{1 + x^2}\right)$

(iii) $\frac{d^2}{dx^2} (16x^2 + 4x - 3)$

(iv) $\frac{d^{50}}{dx^{50}} (\sin x)$