

**(show all your work and circle one letter to get a full mark or you will get zero)**

- 1) The sum of all values that satisfying the conclusion of Rolle's Theorem for

$$f(x) = x - \frac{1}{\pi} \cos(\pi x) \quad \text{on the interval } [0, 4] \text{ is}$$

- (a)  $5/2$
- (b)  $3/2$
- (c)  $7/2$
- (d)  $0$
- (e)  $10$
- (f) none of the above

- 2) The sum of all values that satisfying the conclusion of the Mean Value Theorem for the function  $f(x) = x^2$  on the interval  $[2, 5]$  is

- (a)  $5/2$
- (b)  $7/2$
- (c)  $9/2$
- (d)  $3$
- (e)  $4$
- (f) none of the above

3)

Let  $f$  be a differentiable function such that  $2 < f'(x) < 6$  for all values of  $x$ , then which one of the following statement is TRUE?

- (a)  $6 < f(7) - f(5) < 12$
- (b)  $4 < f(7) - f(5) < 6$
- (c)  $2 < f(7) - f(5) < 6$
- (d)  $10 < f(7) - f(5) < 14$
- (e)  $4 < f(7) - f(5) < 12$
- (f) none of the above