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VCE Specialist Mathematics ½
Modulus & Partial Fractions [1.1]
Test

Results:

Test	_____ / 18
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Section A: Test Questions (18 Marks)

INSTRUCTION: 18 Marks. 18 Minutes Writing.



Question 1 (3 marks)

Tick whether the following statements are **true** or **false**.

	True	False
a. The modulus function simply finds the size of a number inside.		
b. $ x = (\sqrt{x})^2$		
c. $ a + b $ can be interpreted as a distance between a and b .		
d. Graph of $y = x - 2 + 4$ has a range of $[4, \infty)$.		
e. Graph of $y = f(- x)$ has a domain of $x \in (-\infty, 0]$.		
f. For $b < 0$, $\frac{1}{x(x^2-b)}$ is split into $\frac{A}{x} + \frac{Bx+C}{x^2-b}$.		

Space for Personal Notes

Question 2 (2 marks)

Find all values of x for which $|2x + 1| = 2$.

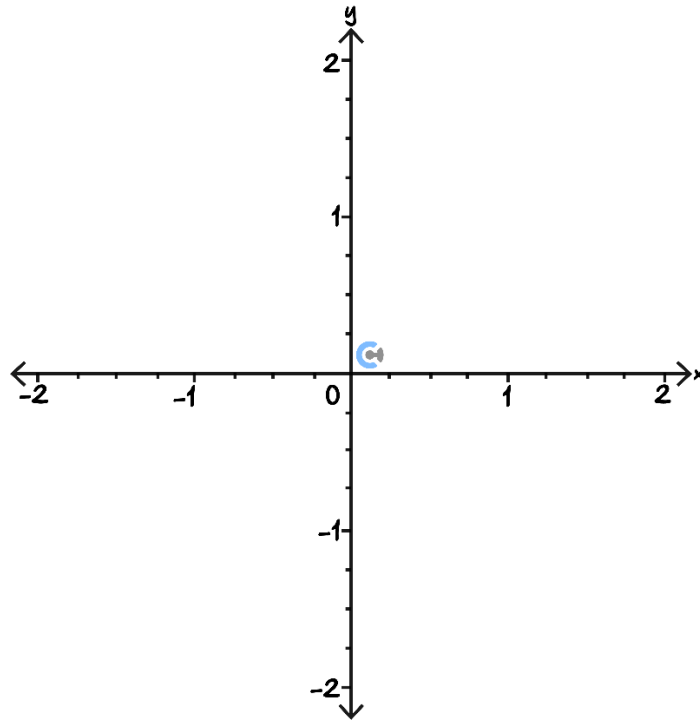
Question 3 (2 marks)

Find all values of x for which $|5 - 2x| < 2$.

Question 4 (3 marks)

Consider the function given by $f(x) = 2|x - 1| - 1$.

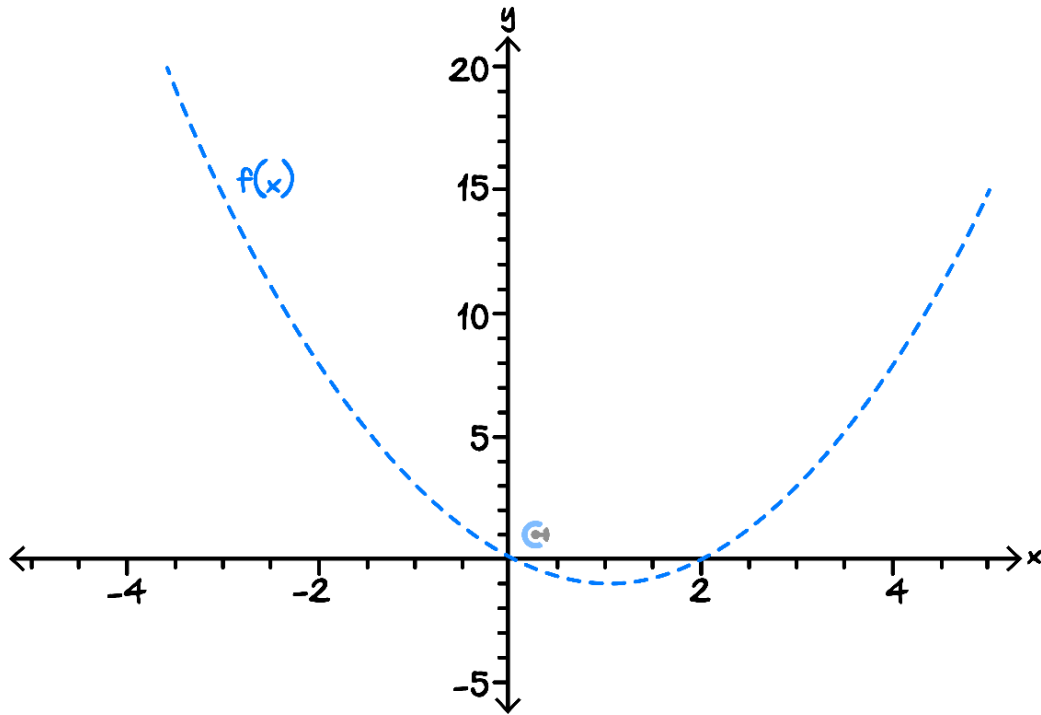
Sketch the graph of $y = f(x)$ on the axes below. Label the vertex and all axis intercepts.



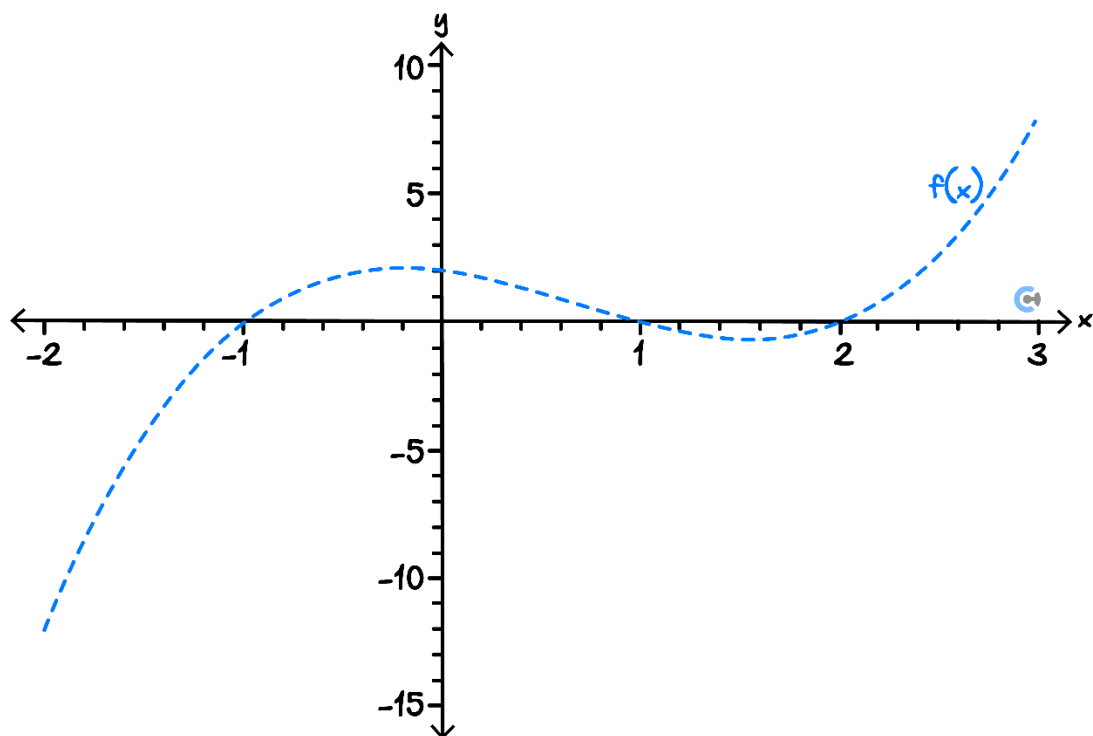
Space for Personal Notes

Question 5 (4 marks)

- a. Consider the graph of $y = f(x)$ shown on the axes below. Sketch the graph of $y = f(|x|)$ on the same axes. (2 marks)



- b. Consider the graph of $y = f(x)$ shown on the axes below. Sketch the graph of $y = -|f(x)|$ on the same axes. (2 marks)



Question 6 (4 marks)

Perform partial fraction decomposition to the following fractions.

a. $\frac{5x+1}{(x-1)(x+2)}$ (2 marks)

b. $\frac{x^2-2}{x(x^2+2)}$ (2 marks)

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