

NAME: \_\_\_\_\_ Score \_\_\_\_\_/10

Please **print** your name**No Decimals No mixed numbers No complex fractions No boxed or circled answers**Consider the function whose rule is  $f(x) = x^3 + 3x^2 - 13x - 15$ .The zeros of  $f$  are  $-5$ ,  $-1$ , and  $3$ .

1. Factor the polynomial  $x^3 + 3x^2 - 13x - 15$ .

$$x^3 + 3x^2 - 13x - 15 = (x + 5)(x + 1)(x - 3)$$

2. What are the  $x$ -intercepts of the function  $f$ ? **Write your answer as ordered pairs**

$$(-5, 0), (-1, 0), \text{ and } (3, 0)$$

3. What are the solutions of the equation  $x^3 + 3x^2 - 13x - 15 = 0$ ?

$$\mathbf{-5, -1, \text{ and } 3 \text{ are the solutions of } x^3 + 3x^2 - 13x - 15 = 0}$$

$$\mathbf{\text{The solution set for } x^3 + 3x^2 - 13x - 15 = 0 \text{ is } \{-5, -1, 3\}}$$

4. As  $x \rightarrow -\infty$ ,  $f(x) \rightarrow -\infty$