(1) (1 points) Circle the word or phrase that you think is closest in meaning to "unique".

    (a) Different

    (b) Distinct

    (c) Distinctive

    (d) One of a kind

(2) (6 points) How many solutions does this linear system have? Circle the right answer. Explain why your answer is correct.

Zero   One   Two   Many (i.e., more than two)

$$2x_1 + x_3 = 0$$
$$x_1 + x_3 = 1$$
$$x_2 + x_3 = 0$$

TURN OVER FOR MORE QUESTIONS

(3) (6 points) How many solutions does this linear system have? Circle the right answer. Explain why your answer is correct. For full credit, do so without any calculations.

Zero One Two Many (i.e., more than two)

$$2x_1 + x_4 = 0$$
$$x_1 + x_3 = 0$$

(4) (7 points) In the following linear system, a, b, c are real numbers whose values are known only to me, but I promise that the system is solvable.

$$2x_1 + 3x_3 = 18$$
$$ax_1 + bx_3 = 0$$
$$x_2 + cx_3 = 2$$

(a) Write down the corresponding homogeneous linear system.

(b) How many solutions does the homogeneous system have? Circle the right answer. Explain why your answer is correct.

Zero One Two Many (i.e., more than two)