

1. For the following system of 2 equations in the 3 unknowns x , y and z ,

$$x + 5y = 6$$

$$z = 1$$

- A. The system is inconsistent.
- B. $(0, 0, 0)$ is a solution.
- C. $(6s-5, s, 1)$ is a solution for any value of s .
- D. $6, \frac{6}{5}, 1$ is a solution.
- E. $(6-5s, s, 1)$ is a solution for any value of s .
- F. $(6, 1, 0)$ is a solution.

2. The vector $v = (1, 0, -1)$ can be written as $v = c_1v_1 + c_2v_2 + c_3v_3$, where $\{v_1, v_2, v_3\}$ is the orthonormal basis with

$$v_1 = \frac{\sqrt{3}}{3}(1, 1, 1), \quad v_2 = \frac{\sqrt{6}}{6}(1, 1, -2), \quad \text{and} \quad v_3 = \frac{\sqrt{2}}{2}(1, -1, 0),$$

Then, $(c_1, c_2, c_3) =$

- A. $0, \frac{\sqrt{2}}{2}, -\frac{\sqrt{6}}{3}$
- B. $0, \frac{\sqrt{2}}{2}, \frac{\sqrt{6}}{3}$
- C. $0, \frac{\sqrt{6}}{2}, \frac{\sqrt{2}}{2}$
- D. $1, \frac{\sqrt{2}}{2}, \frac{\sqrt{6}}{6}$
- E. $\frac{4\sqrt{3}}{3}, -\frac{\sqrt{2}}{2}, -\frac{\sqrt{6}}{3}$
- F. $4, \frac{\sqrt{2}}{2}, \frac{\sqrt{6}}{6}$