Q3 (a) v_1, v_2, v_3 (v_4 is redundant as $v_4 = -v_1 - v_2 - v_3$)

(b) 2 nd vector,

that is the only one that can be expressed as a linear combination of

v_1,

v_2, v_3 (Notice we don't care about v_4 here as it is in Span $\{v_1, v_2, v_3\}$)

(c) (1, 1, 1, 1)

(d) same as (a)

as the image space of A is the span of column vectors of A

Q4 F F F F T F T

Q5 (a) rref[A] = $\begin{pmatrix} 1 & 2 & 0 & 0 & 1 \\ 0 & 0 & 1 & 0 & 1 \\ 0 & 0 & 0 & 1 & 2 \\ 0 & 0 & 0 & 0 & 0 \end{pmatrix}$

(b) Similar method as outlined in Page 129 of the textbook

(2, -1, 0, 0, 0), (-1, 0, -1, -2, 1)

(c) 1 st, 3 rd and 4 th columns of A

(Note this is different from the 1 st, 3 rd and 4 th columns of rref[A])