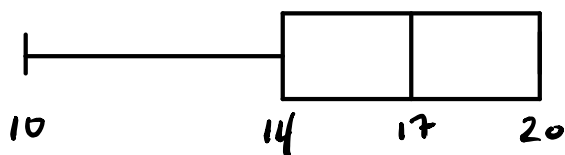


Quiz 1 results



- Quiz 2 today
 - Sub next week
-

14.2.33

$$\vec{u}(t) = \langle 2t^3, t^2 - 1, -8 \rangle$$

$$\frac{d}{dt} \left((t^{15} + 9t) \cdot \vec{u}(t) \right) = f(t) \cdot \vec{u}'(t) + f'(t) \cdot \vec{u}(t)$$

$$= (t^{15} + 9t) \langle 6t^2, 2t, 0 \rangle$$

$$+ (15t^{14} + 9) \langle 2t^3, t^2 - 1, -8 \rangle$$

Line segment from P to Q

$$\vec{r}_0 = \vec{OP}, \quad \vec{r}_1 = \vec{OQ}$$

$$\vec{r}(t) = (1-t) \vec{r}_0 + t \vec{r}_1, \quad 0 \leq t \leq 1$$

$$= \vec{r}_0 - t \vec{r}_0 + t \vec{r}_1$$

$$= \vec{r}_0 + t(\vec{r}_1 - \vec{r}_0)$$

$$\vec{r}_0 = \langle 1, 2, 3 \rangle, \quad \vec{r}_1 = \langle -2, 4, -3 \rangle$$

$$\vec{r}(t) = (1-t)\langle 1, 2, 3 \rangle + t\langle -2, 4, -3 \rangle$$

$$= \langle 1-t-2t, 2-2t+4t, 3-3t-3t \rangle$$

$$= \langle 1-3t, 2+2t, 3-6t \rangle$$