

$$b = \frac{qz^3 \epsilon F}{24\pi \epsilon_0 R T} \left(\frac{2}{\epsilon R T} \right)^{1/2}$$

$$b = \boxed{\frac{qz^3 \epsilon F}{24\pi \epsilon_0 R}} \frac{1}{T} \boxed{\left(\frac{2}{\epsilon R} \right)^{1/2}} \left(\frac{1}{T} \right)^{1/2}$$

c

d.

$$b = c \frac{1}{T} d \frac{1}{T^{1/2}}$$

$$= cd \frac{1}{T^{3/2}} = cd T^{-3/2}$$

$$\frac{db}{dT} = -\frac{3cd}{2} T^{-5/2}$$

$$= -\frac{3}{2} \frac{qz^3 \epsilon F}{24\pi \epsilon_0 R} \left(\frac{2}{\epsilon R} \right)^{1/2} T^{-5/2}$$

$$= -\frac{qz^3 \epsilon F}{16\pi \epsilon_0 R} \left(\frac{2}{\epsilon R} \right)^{1/2} T^{-5/2}$$

$$\Rightarrow b = \frac{qz^3 \epsilon F}{24\pi \epsilon_0 R} \left(\frac{2}{\epsilon R} \right)^{1/2} T^{-3/2}$$

$$= \frac{qz^3 \epsilon F}{24\pi \epsilon_0} \left(\frac{2}{\epsilon R^3} \right)^{1/2} T^{-3/2}$$

$$\frac{db}{dT} = -\frac{qz^3 \epsilon_0 F}{16\pi \epsilon_0} \left(\frac{2}{\epsilon R^3 T^5} \right)^{1/2}$$