Simplify each of the following expressions. Be prepared to demonstrate your work if asked.

(a) $\left(\left(-\dfrac{1}{4}\right)^{-2}\right)^{3/2}$

(b) $\left(\dfrac{16^{-9/2} \cdot 16^{7/2}}{16^{-2}}\right)^{-1/2}$

(c) $\sqrt{9x^5} \cdot \sqrt{4x^{-3}} \cdot \sqrt{(25x)^{-2}}$

(d) $(2x^3 - 3x^2)(x^{-3} + x^{-2})$

(e) $\dfrac{(4x^2)^{3/2} - 4(x^2)^{3/2}}{4x(2 - x^2)}$