Review Rational Functions factor, characteristics, operations

Factor each completely.

1) $n^2 + 10n + 25$

2) $x^4 - 4$

3) $5b^3 + 6b^2 + 15b + 18$

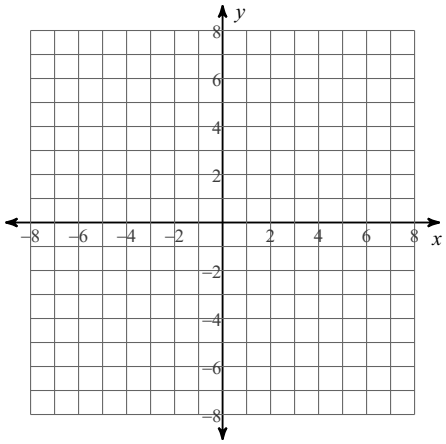
4) $8x^3 - 125$

5) $2m^4 + m^2 - 6$

6) $5u^4 + u^2$

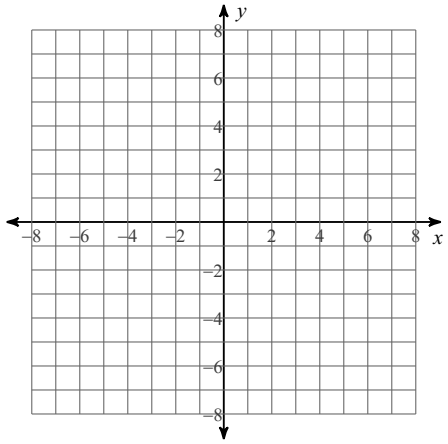
Sketch the graph and identify the x-intercept/s and VA.

7) $f(x) = \dfrac{x+2}{x+1}$



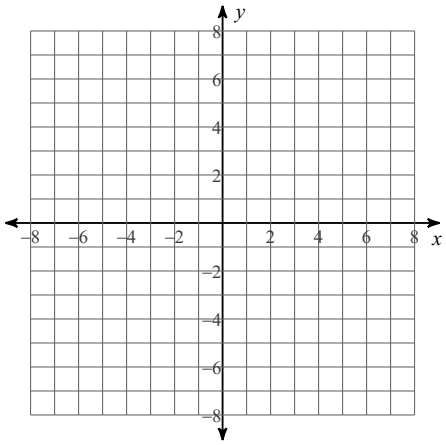
Sketch the graph and identify the VA and HA.

8) $f(x) = \dfrac{x^3 - 2x^2 - 8x}{3x^2 + 3x}$



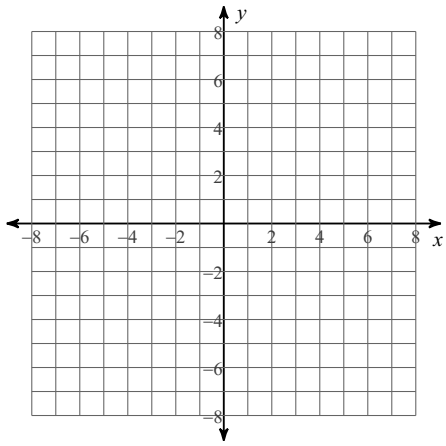
Sketch the graph and identify the HA & EB.

9) $f(x) = \dfrac{-x-2}{x-3}$



Sketch the graph and identify the EB and x-intercept/s.

10) $f(x) = \dfrac{x^3 + 3x^2 - 4x}{4x^2 - 4x}$



Simplify each expression.

11) $\dfrac{v+5}{v^2+7v+10} \cdot \dfrac{2v^2}{2v}$

12) $\dfrac{5}{5(a-4)} \cdot \dfrac{2(a+1)}{2}$

13) $\dfrac{1}{v-4} \div \dfrac{3v^2(v+5)}{(v+2)(v-4)}$

14) $\dfrac{3m}{4} + \dfrac{3m}{4m^2}$

15) $\dfrac{3}{4(a+3)} - \dfrac{a+4}{4(a+3)}$

16) $\dfrac{4}{2} - \dfrac{v-3}{2(v-1)}$