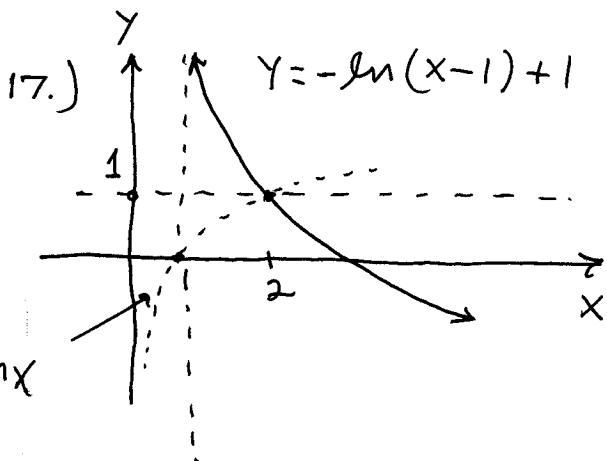
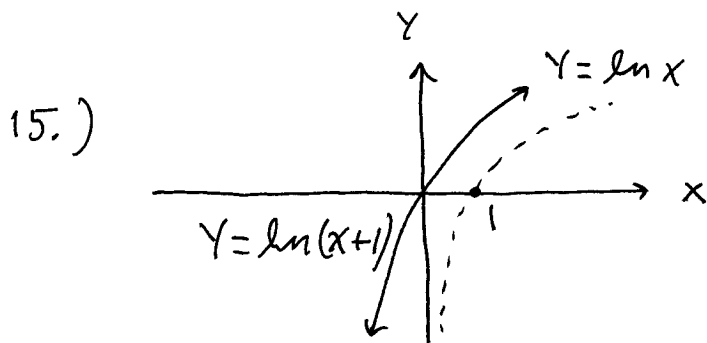
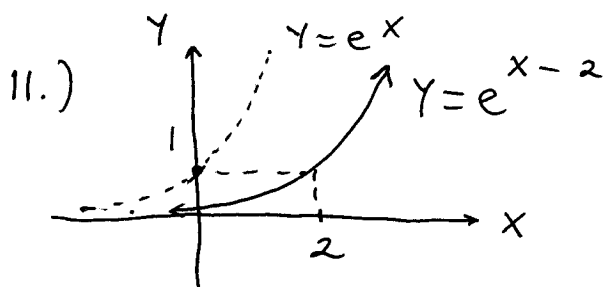
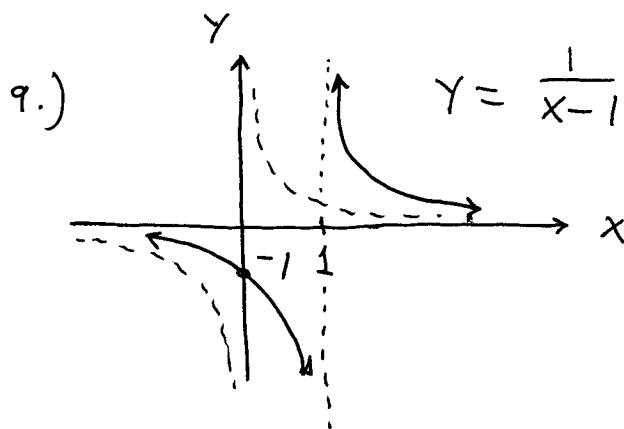
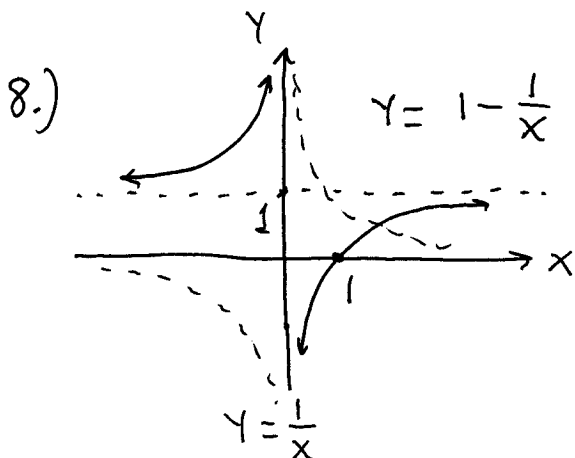
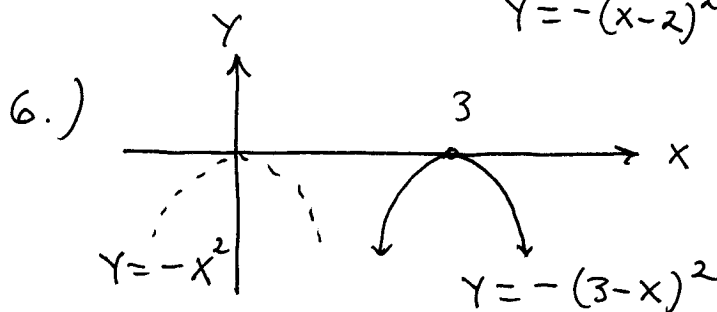
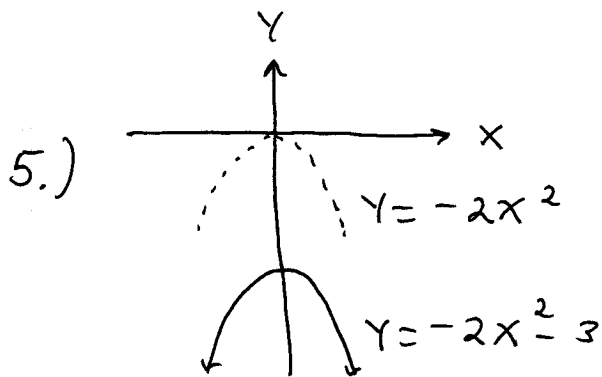
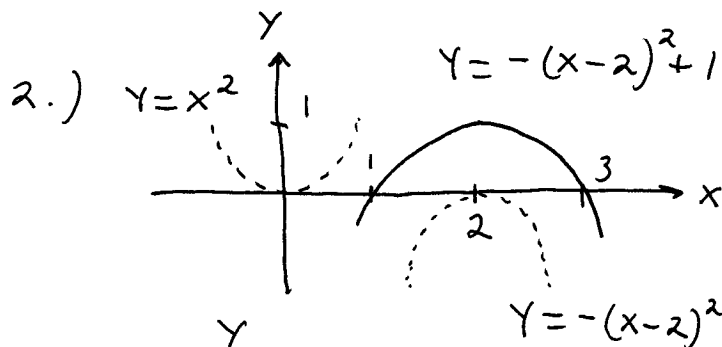
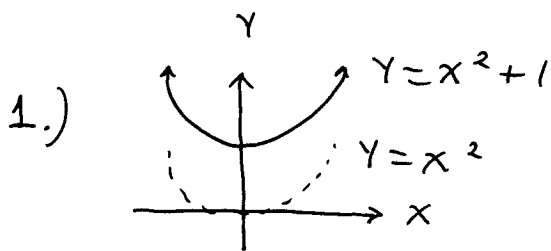


Section 1.3



$y = \ln x$

23.) $Y = x^2$

a.) $Y = x^2 - 2$ is the graph of $Y = x^2$ lowered (\downarrow) 2 units

b.) $Y = (x-1)^2 + 1$ is the graph of $Y = x^2$ shifted right (\rightarrow) 1 unit and up (\uparrow) 1 unit

c.) $Y = -2(x+2)^2$ is the graph of $Y = x^2$ turned upside down and "narrowed" by a factor of 2, then shifted left (\leftarrow) 2 units

30.) $Y = \ln x$

a.) $Y = \ln(1-x)$ is the graph of $Y = \ln x$ reflected in the Y -axis, then shifted right (\rightarrow) 1 unit

b.) $Y = \ln(2+x) - 1$ is the graph of $Y = \ln x$ shifted left (\leftarrow) 2 units, then down (\downarrow) 1 unit

c.) $Y = -\ln(2-x) + 1$ is the graph of $Y = \ln x$ reflected in the Y -axis, then shifted right (\rightarrow) 2 units, flipped upside down, and raised 1 unit

$$100.) f(x) = \frac{1}{1 + e^{-(b+mx)}} \cdot \frac{e^{b+mx}}{e^{b+mx}} \rightarrow$$

$$f(x) = \frac{e^{b+mx}}{e^{b+mx} + 1} ; \text{ then}$$

$$\ln \frac{f(x)}{1-f(x)} = \ln \frac{\frac{e^{b+mx}}{e^{b+mx} + 1}}{1 - \frac{e^{b+mx}}{e^{b+mx} + 1}}$$

$$= \ln \frac{\frac{e^{b+mx}}{e^{b+mx} + 1}}{\frac{e^{b+mx} + 1 - e^{b+mx}}{e^{b+mx} + 1}} = \ln \frac{e^{b+mx}}{e^{b+mx} + 1} \cdot \frac{e^{b+mx} + 1}{1}$$

$$= \ln e^{b+mx} = b+mx$$