

$$1(b) F = (x(y + y'(z+w)))'$$

$$= x' + (y + y'(z+w))'$$

$$= x' + y' \cdot [y'(z+w)]'$$

$$= x' + y' \cdot [y + (z+w)']$$

$$= x' + y' \cdot (y + w'z')$$