

4. (a) Let the reading on the Celsius scale be  $x$  and the reading on the Fahrenheit scale be  $y$ . Then  $y = \frac{9}{5}x + 32$ . If we require  $y = 2x$ , then we have

$$2x = \frac{9}{5}x + 32 \implies x = (5)(32) = 160^\circ\text{C}$$

which yields  $y = 2x = 320^\circ\text{F}$ .

- (b) In this case, we require  $y = \frac{1}{2}x$  and find

$$\frac{1}{2}x = \frac{9}{5}x + 32 \implies x = -\frac{(10)(32)}{13} \approx -24.6^\circ\text{C}$$

which yields  $y = x/2 = -12.3^\circ\text{F}$ .