1.1 a) Both scales are linear, in conversion of the form: °C = a °F + b
°F = c °C + d

when °F = 32 °C = 0 ⇒ 0 = a(32) + b
°F = 212 °C = 100 ⇒ 100 = a(212) + b

Subtract second from first 100 = a(212 - 32)

In first equation: 0 = 0.56 × 32 + b ⇒ b = -54.8

⇒ °C = 0.56 °F - 18

Can do similar reasoning to go other way, or just solve:

°C + 18 = 0.56 °F

⇒ °F = (\frac{1}{0.56}) °C + \frac{18}{0.56}

°F = 1.9 °C + 32

Note the coefficients in this equation are exact, but not true for other.

Let's redo °F ⇒ °C conversion to make it exact.

a = 100/180 = 5/9

⇒ 0 = \frac{5}{9} × 32 + b ⇒ b = -\frac{160}{9}

⇒ °C = \frac{5}{9} °F - \frac{160}{9}
b) absolute zero on kelvin scale is \(-273^\circ C\)

\[ ^\circ F = 1.8(-273) + 32 \]

\[ ^\circ F = -459^\circ \]

I'm not merical by

exact

-273 is not an

exact number.