1. Let B be the price of the shoes, I be the amount Peter needs to invest, n be the number of compounding periods before the Congress, r be the interest compounding monthly . Then

$r = 1 \times \dfrac{4.0}{12} = 0.33$ percent $= 0.0033$, and

$n = 19 \div 1 = 19$

$B = I\left(1 + r\right)^{n}$, so $I = \dfrac{B}{\left(1 + r\right)^{n}}$. Therefore

$$
\begin{aligned}
I &= \frac{100}{\left(1 + 0.0033\right)^{19}} \\
&= \frac{100}{1.0653} \\
&\approx 93.87
\end{aligned}
$$

Hence he needs to invest approximately \$93.87 .

2. Let B be the price of the shoes, I be the amount Peter needs to invest, n be the number of compounding periods before the Congress, r be the interest compounding monthly . Then

$r = 1 \times \dfrac{8.0}{12} = 0.67$ percent $= 0.0067$, and

$n = 22 \div 1 = 22$

$B = I\left(1 + r\right)^{n}$, so $I = \dfrac{B}{\left(1 + r\right)^{n}}$. Therefore

$$
\begin{aligned}
I &= \frac{200}{\left(1 + 0.0067\right)^{22}} \\
&= \frac{200}{1.1574} \\
&\approx 172.80
\end{aligned}
$$

Hence he needs to invest approximately \$172.80 .

3. Let B be the price of the shoes, I be the amount Peter needs to invest, n be the number of compounding periods before the Congress, r be the interest compounding monthly . Then

$r = 1 \times \dfrac{7.0}{12} = 0.58$ percent $= 0.0058$, and

$n = 20 \div 1 = 20$

$B = I\left(1 + r\right)^{n}$, so $I = \dfrac{B}{\left(1 + r\right)^{n}}$. Therefore

$$
\begin{aligned}
I &= \frac{100}{\left(1 + 0.0058\right)^{20}} \\
&= \frac{100}{1.1234} \\
&\approx 89.02
\end{aligned}
$$

Hence he needs to invest approximately \$89.02 .