$$I_c = I_e = 0.66mA \qquad V_{cq} = 4.5V$$

$$\begin{aligned} R_c &= \frac{V_{cc} - V_{cq}}{I_c} \\ &= \frac{9V - 4.5V}{0.66mA} \\ R_c &= 6K8 \end{aligned}$$

$$A = -\frac{R_c}{R_e}$$

$$R_e = 1K$$

$$|A| = 6.8$$

$$\begin{aligned} V_{bias} &= I_c * R_e + 0.7V \\ &= 0.66mA * 1K + 0.7 \\ V_{bias} &= 1.36V \end{aligned}$$

$$R_2 = 10R_e = 10K$$

$$V_{bias} = \frac{R_2}{R_1 + R_2} V_{cc}$$

$$1.36V = \frac{10K}{R_1 + 10K} 9V$$

$$1.36V = \frac{10K}{R_1 + 10K} 9V$$

$$R_1 = 56K2$$

$$R_{in} = R_1 // R_2 = 8K5$$

$$f_c = \frac{1}{2\pi C_1 R_{in}}$$

$$\begin{aligned} C_1 &= \frac{1}{2\pi \frac{f_c}{10} R_{in}} \\ &= \frac{1}{2\pi \frac{20Hz}{10} 8K5} \\ &= 9.3\mu F \\ C_1 &= 10\mu F \end{aligned}$$

$$r'_e = \frac{1}{40 I_e} = \frac{1}{40 * 0.66mA} = 38\Omega$$

$$f_c = \frac{1}{2\pi C_B r'_e}$$

$$
\begin{aligned}
C_B &= \frac{1}{2\pi f_c r'_e} \\
&= \frac{1}{2\pi 20Hz * 38R} \\
&= 219\mu F \\
C_B &= 100\mu F
\end{aligned}
$$

$$\Im$$

given:

$$|H(\omega)|, \tau(\omega) = -\frac{d}{d\omega}\angle H(\omega)$$

find $H(\omega)$:

$$H(\omega) = |H(\omega)| e^{-j\int \tau(\omega) d\omega}$$

because of:

$$\mathbb{C} = |\beth \approx \gtrdot \beth \digamma| e^{j\angle\mathbb{C}}$$

x = original price, y = discounted price
For a 15% discount:

$$x - (0.15 * x) = y$$

$$1 - 0.15 = 0.85$$
$$663 \div 0.85 = 780$$
$$ie: 780 - (0.15 * 780) = 663$$

$$x - (0.15 * x) = 663$$

$$divide\ through\ by\ x$$
$$\frac{x}{x} - \frac{(0.15 * x)}{x} = \frac{663}{x}$$

$$simplify$$
$$1 - 0.15 = \frac{663}{x}$$

$$bring\ x\ to\ left$$
$$x * 0.85 = 663$$
$$x = \frac{663}{0.85} = 780$$