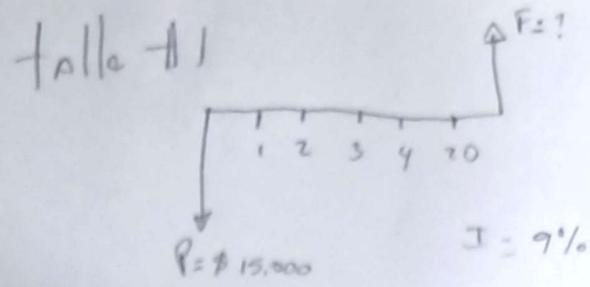


1) $P = 15,000$
 $i = 0.09$
 $n = 20$



$$F = 15,000 \times (1 + 0.09)^{20} = 15,000 \times (1.09)^{20}$$

$$F = 15,000 \times 5.604411 = 84,066.17$$

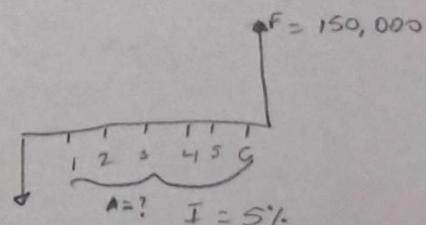
b) $P = \frac{F}{(1+r)^n}$

$$P = \frac{100,000}{(1.09)^{20}} \approx \frac{100,000}{5.604411}$$

$$P = 17,840.06$$

2) $A = F * [i / ((1+i)^n - 1)]$

$A = ?$
 $F = 150,000$
 $i = 5\%$
 $n = 6 \text{ years}$



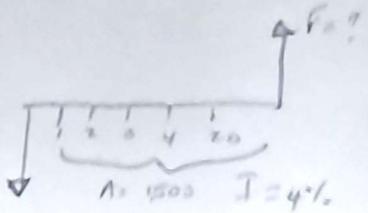
$$150,000 * [0.05 / ((1 + 0.05)^6 - 1)]$$

$$\approx 1,3400956$$

$$= 1,3400956 - 1 = 0,3400956$$

$$0.05 / 0.3400956 \approx 0.147012$$

$$A = 150,000 * 0.147012 \\ = \$22,052.65$$



$$③ A = 1,500$$

$$i = 0.04$$

$$n = 20$$

$$F = \frac{1,500 \times (1.04)^{20}}{0.04}$$

$$F = 1,500 \times \frac{(1.04)^{20} - 1}{0.04} = 1,500 \times \frac{1.191123 - 1}{0.04}$$

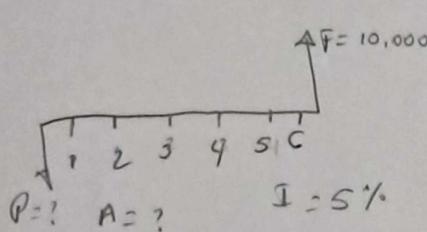
$$F = 1,500 \times 29.777 = 44,667.15 \\ = \$44,667.15$$

④

$$F = 10,000$$

$$i = 0.05$$

$$n = 6$$



$$A = \frac{F \times r}{(1+r)^{n-1}}$$

$$A = \frac{10,000 \times 0.05}{(1.05)^6 - 1} = \frac{500}{0.340096}$$

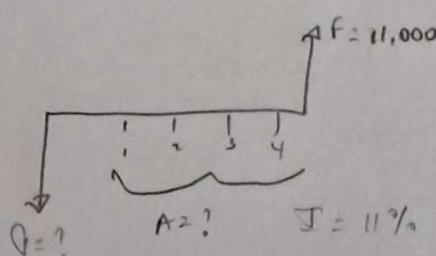
$$A = 1,470.20$$

⑤

$$F = 11,000$$

$$i = 0.11$$

$$n = 4$$



$$A = \frac{F \times r}{(1+r)^{n-1}}$$

$$A = \frac{11,000 \times 0.11}{(1.11)^4 - 1} = \frac{1,210}{0.5181}$$

$$A = 2,335.63$$