

Part V: Examples of Savings Bonds (Section 2.5)

1. What is the current price of a government bond if the par value is \$10,000, the discount rate is 2.1% compounded monthly and has a maturity date of May 21, 2027?

$$A = P \left(1 + \frac{r}{n} \right)^{nt}$$
$$\$10,000 = P \left(1 + \frac{0.021}{12} \right)^{12 \cdot 12}$$
$$\$10,000 = P (1 + 0.00175)^{144}$$
$$\$10,000 = P (1.00175)^{144}$$
$$\frac{\$10,000}{1.2863} = \frac{P (\cancel{1.2863})}{\cancel{1.2863}}$$

$P = \$7774.24$

2. What is the current price of a \$50,000 education bond if the discount rate is 6%, compounded semi-annually to a 9th grade student for their college education?

$$A = P \left(1 + \frac{r}{n} \right)^{nt}$$
$$\$50,000 = P \left(1 + \frac{0.06}{2} \right)^{2 \cdot 4}$$
$$\$50,000 = P (1 + 0.03)^8$$
$$\$50,000 = P (1.03)^8$$
$$\frac{\$50,000}{1.26677} = \frac{P (\cancel{1.26677})}{\cancel{1.26677}}$$

$\$39,470.46 = P$