Math 17 HW 5 (Solutions)

10.1

1) $F = (1+0.06)60 = \boxed{\$63.60}$

2) $P = \frac{16000}{15236} - 1 = 0.05 = \boxed{5\%}$

3) $P = \frac{9}{13} - 1 = -0.31 = \boxed{-31\%}$ = 31% decrease

4) After day 1:

$F_1 = (1+0.25)B$

Now use this as the B for day 2.

After day 2:

$F_2 = (1-0.20)F_1 = 0.8 \cdot 1.25 B = B$

Thus the percentage change is

$P = \frac{B}{B} - 1 = \boxed{0\%}$ no change.

5) Skipping steps...

$F_3 = 1.08 \cdot 1.15 \cdot 1.20 B$

$\Rightarrow P = \frac{1.08 \cdot 1.15 \cdot 1.20 B}{B} - 1 = 0.49 = \boxed{49\%}$

10.2

1) $P = 3000, r = 0.03, t = 5$

$I = 3000 \cdot 0.03 \cdot 5 = \boxed{\$450}$

2) $P = 875, r = 0.0428, t = 4$

$F = P(1+rt) = 875(1+0.0428 \cdot 4) = \boxed{\$1024.80}$

3) $F = 4920, r = 0.0575, t = 4$

$P = \frac{F}{1+rt} = \frac{4920}{1+0.0575 \cdot 4} = \boxed{\$4000}$

4) $F = 8250$, $P = 5000$, $t = 7$

$F = P + Prt \xrightarrow{\text{rearranging}} r = \frac{F-P}{Pt} = \frac{8250-5000}{5000 \cdot 7} = 0.09 = \boxed{9\%}$

5) $t = 20$, $P = x$, $F = 2P = 2x$

$r = \frac{F-P}{Pt} = \frac{2x-x}{x \cdot 20} = \frac{x}{20x} = \frac{1}{20} = 0.05 = \boxed{5\%}$

Alternatively we could've just let $P = 1$ and $F = 2$

$r = \frac{2-1}{2 \cdot 20} = \frac{1}{20}$

10.3 II

1) $P = 3250$, $r = 0.09$, $t = 4$

$F = 3250(1+0.09)^4 = \boxed{\$4587.64}$

2) $P = 25000$, $r = 0.035$, $t = 20$

$F = 25000(1+0.035)^{20} = \boxed{\$49,744.72}$

3) $P = 3250$, $p = \frac{0.036}{12} = 0.003 = 0.3\%$, $t = 4 \rightarrow T = 4 \cdot 12 = 48$

$F = 3250(1+0.003)^{48} = \boxed{\$3,752.56}$

4) $p = \frac{0.0365}{365} = 0.0001 = \boxed{0.01\%}$