

Problem 3: From ILT:

$$\begin{aligned} > A25 := .08165 & & A25 := 0.08165 & (1) \end{aligned}$$

$$\begin{aligned} > A32 := .11228 & & A32 := 0.11228 & (2) \end{aligned}$$

$$\begin{aligned} > l32 := 9471591.0 & & l32 := 9.4715910 \cdot 10^6 & (3) \end{aligned}$$

$$\begin{aligned} > l25 := 9565017.0 & & l25 := 9.5650170 \cdot 10^6 & (4) \end{aligned}$$

The program I am using (Maple) will not allow numbers at the beginning of variable names. Thus, instead of 7p25 I write p7p25. I deal similarly with other such symbols e.g. E10E50 instead of 10E50.

$$\begin{aligned} > p7p25 := \frac{l32}{l25} & & p7p25 := 0.9902325317 & (5) \end{aligned}$$

$$\begin{aligned} > v := (1.06)^{-1}; d := 1 - v; & & v := 0.9433962264 & (6) \\ & & d := 0.0566037736 & \end{aligned}$$

$$\begin{aligned} > E7E25 := p7p25 \cdot v^7 & & E7E25 := 0.6585611892 & (7) \end{aligned}$$

$$\begin{aligned} > A25Aone7 := A25 - E7E25 \cdot A32 & & A25Aone7 := 0.00770674968 & (8) \end{aligned}$$

$$\begin{aligned} > 1000 \cdot \% & & 7.706749680 & (9) \end{aligned}$$

Problem 5:

From ILT:

$$\begin{aligned} > l33 := 9455522.0 & & l33 := 9.4555220 \cdot 10^6 & (10) \end{aligned}$$

This expression defines a function f(t):

$$\begin{aligned} > f := t \rightarrow 1 - (3 - t) \cdot .01 & & f := t \rightarrow 1 + (-1) (3 - t) \cdot 0.01 & (11) \end{aligned}$$

From ILT:

$$\begin{aligned} > q30 := .00153 & & q30 := 0.00153 & (12) \end{aligned}$$

$$\begin{aligned} > q31 := .00161 & & q31 := 0.00161 & (13) \end{aligned}$$

$$\begin{aligned} > q32 := .00170 & & q32 := 0.00170 & (14) \end{aligned}$$

$$\begin{aligned} > q33 := .00179 & & q33 := 0.00179 & (15) \end{aligned}$$

We compute the select values of $q[30]+t$, and $p[30]+t$, $t=0,1,2$:

$$\begin{aligned} > qq30 := f(0) \cdot q30 & & qq30 := 0.0014841 & (16) \end{aligned}$$

$$\begin{aligned} > qq31 := f(1) \cdot q31 & & qq31 := 0.0015778 & (17) \end{aligned}$$

$$\begin{aligned} > qq32 := f(2) \cdot q32 & & qq32 := 0.0016830 & (18) \end{aligned}$$

$$\begin{aligned} > pp30 := 1 - qq30 & & pp30 := 0.9985159 & (19) \end{aligned}$$

$$\begin{aligned} > pp31 := 1 - qq31 & & pp31 := 0.9984222 & (20) \end{aligned}$$

$$\begin{aligned} > pp32 := 1 - qq32 & & pp32 := 0.9983170 & (21) \end{aligned}$$

We compute the corresponding values of l :

$$\begin{aligned} > ll32 := \frac{l33}{pp32} & & ll32 := 9.471462471 \cdot 10^6 & (22) \end{aligned}$$

$$\begin{aligned} > ll31 := \frac{ll32}{pp31} & & ll31 := 9.486430160 \cdot 10^6 & (23) \end{aligned}$$

$$\begin{aligned} > ll30 := \frac{ll31}{pp30} & & ll30 := 9.500529896 \cdot 10^6 & (24) \end{aligned}$$

$$\begin{aligned} > add33 := 15.5906 & & add33 := 15.5906 & (25) \end{aligned}$$

$$\begin{aligned} > aadd30 := 1 + \frac{ll31}{ll30} \cdot v + \frac{ll32}{ll30} \cdot v^2 + \frac{v^3 \cdot l33}{ll30} \cdot add33 & & aadd30 := 15.85742449 & (26) \end{aligned}$$

$$\begin{aligned} > \% \cdot 1000 & & 15857.42449 & (27) \end{aligned}$$

From ILT:

$$\begin{aligned} > A33 := .11751 & & A33 := 0.11751 & (28) \end{aligned}$$

$$\begin{aligned} > AA30 := \frac{(ll30 - ll31)}{ll30} \cdot v + \frac{(ll31 - ll32)}{ll30} \cdot v^2 + \frac{(ll32 - l33)}{ll30} \cdot v^3 + \frac{v^3 \cdot l33}{ll30} \cdot A33 & & AA30 := 0.1024072543 & (29) \end{aligned}$$

$$\begin{aligned} > \% \cdot 1000 & & 102.4072543 & (30) \end{aligned}$$

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Problem 6.

> $add40 := 15; A40 := .16$

$add40 := 15$

$A40 := 0.16$

(31)

> $dd := \frac{(1 - A40)}{add40}$

$dd := 0.05600000000$

(32)

> $ip1 := (1 - dd)^{-1}$

$ip1 := 1.059322034$

(33)

Problem 7:

> $add50 := 13; add4010 := 7.7$

$add50 := 13$

$add4010 := 7.7$

(34)

> $E10E40 := \frac{(add40 - add4010)}{add50}$

$E10E40 := 0.5615384615$

(35)

> $A50 := 1 - dd \cdot add50$

$A50 := 0.2720000000$

(36)

> $A4010 := A40 - E10E40 \cdot A50;$

$A4010 := 0.0072615385$

(37)

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