

### Easy Interest Theory Exercises # 1

1.  $v$  is the ??? of  $1+i$
2. ??? is the reciprocal of  $1+i$
3.  $v$  is the reciprocal of ???
4. What is  $d$  in terms of  $v$ ?
5. What is  $v$  in terms of  $d$ ?
6. What is  $v$  in terms of  $i$ ?
7. What is  $i$  in terms of  $v$ ?
8. What is  $d$  in terms of  $i$ ?
9. What is  $i$  in terms of  $d$ ?
10. What is  $\delta$  in terms of  $i$ ?
11. What is  $i$  in terms of  $\delta$  ?
12. What is  $v$  in terms of  $\delta$  ?
13. What is  $\delta$  in terms of  $i$ ?
14. What is  $\delta$  in terms of  $v$ ?
15.  $v = 0.99$   $d = ???$
16.  $i = 0.12$ .  $v = ?$
17.  $1+i = 1.003$ .  $v = ?$
18.  $v = 0.991$   $\delta = ???$
19.  $i = 0.02$ .  $v = ?$
20.  $i = 0.06$ .  $d = ?$
21.  $d = 0.09$   $\delta = ???$
22.  $\delta = 0.001$ .  $i = ?$
23.  $i = 0.01$ .  $v = ?$
24.  $\delta = 0.01$   $v = ???$
25.  $d = 0.04$ .  $i = ?$
26.  $d = 0.02$   $i = ?$
27.  $v = 0.98$   $d = ???$
28.  $i = 0.02$ .  $v = ?$
29.  $d = 0.0625$   $\delta = ???$
30.  $i = .01$ .  $\delta = ?$
31.  $v = 0.92$   $d = ???$
32.  $i = 0.01$ .  $d = ?$
33.  $d = 0.10$ .  $i = ?$
34.  $d = 0.08$ .  $i = ?$
35.  $d = 0.06$ .  $i = ?$
36.  $\delta = 0.08$   $d = ???$
37.  $v = 0.85$   $d = ???$
38.  $i = 0.09$ .  $v = ?$
39.  $\delta = 0.1133$   $v = ???$
40.  $\delta = 0.05$   $d = ???$
41.  $i = 0.08$ .  $v = ?$
42.  $i = 0.0525$ .  $v = ?$
43.  $v = 0.9975$   $\delta = ???$
44.  $i = 0.05$ .  $d = ?$
45.  $i = 0.04$ .  $d = ?$
46.  $\delta = 0.02$   $v = ???$
47.  $\delta = 0.001$   $d = ???$
48.  $i = 0.03$ .  $d = ?$
49.  $d = 0.15$   $\delta = ???$
50.  $i = 0.02$ .  $d = ?$
51.  $v = 0.88$   $\delta = ???$
52.  $a(1) = ???$
53.  $a(0) = ???$
54. effective rate of interest, in functional terms
55. effective rate of discount, in functional terms
56.  $d = ???v$
57.  $d = i ???$

Solutions:

<b>1:</b> reciprocal $v = \frac{1}{1+i} = (1+i)^{-1}$	<b>15:</b> 0.01	<b>38:</b> 0.9174
<b>2:</b> v	<b>16:</b> 0.8929	<b>39:</b> 0.8929
<b>3:</b> 1+i	<b>17:</b> 0.997	<b>40:</b> 0.0488
<b>4:</b> d is the ones compliment of v $d = 1 - v$	<b>18:</b> 0.0090	<b>41:</b> 0.9259
<b>5:</b> v is the ones compliment of d $v = 1 - d$	<b>19:</b> 0.9804	<b>42:</b> 0.9501
<b>6:</b> $\frac{1}{1+i}$	<b>20:</b> 0.05660	<b>43:</b> 0.0025
<b>7:</b> $i = \frac{1}{v} - 1$	<b>21:</b> 0.0943	<b>44:</b> 0.0476
<b>8:</b> $d = 1 - v = 1 - \frac{1}{1+i} = \frac{i}{1+i}$	<b>22:</b> 0.001	<b>45:</b> 0.03846
<b>9:</b> $i = \frac{1}{v} - 1 = \frac{1}{1-d} - 1 = \frac{d}{1-d}$	<b>23:</b> 0.9901	<b>46:</b> 0.9902
<b>10:</b> $\delta = \ln(1+i)$	<b>24:</b> 0.9900	<b>47:</b> 0.001
<b>11:</b> $e^\delta - 1$ $e^\delta = 1 + i$ $i = e^\delta - 1$	<b>25:</b> 0.0417	<b>48:</b> 0.02913
<b>12:</b> $e^{-\delta}$ $e^\delta = 1 + i$ $\frac{1}{e^\delta} = \frac{1}{1+i}$ $e^{-\delta} = v$	<b>26:</b> 0.0204	<b>49:</b> 0.1625
<b>13:</b> $\ln(1+i)$ $e^\delta = 1 + i$ $\delta = \ln(1+i)$	<b>27:</b> 0.02	<b>50:</b> 0.01961
<b>14:</b> $-\ln(v)$ $e^\delta = 1 + i$ $\frac{1}{e^\delta} = \frac{1}{1+i}$ $\frac{1}{e^\delta} = v$ $e^\delta = \frac{1}{v}$ $\delta = -\ln(v)$	<b>28:</b> 0.9804	<b>51:</b> 0.1278
	<b>29:</b> 0.0625	<b>52:</b> 1+1
	<b>30:</b> $\delta = \ln(1.01)$	<b>53:</b> 1
	<b>31:</b> 0.08	<b>54:</b> $i_t = \frac{a(t)-a(t-1)}{a(t-1)}$
	<b>32:</b> 0.00990	<b>55:</b> $i_t = \frac{a(t)-a(t-1)}{a(t)}$
	<b>33:</b> 0.1111	<b>56:</b> i
	<b>34:</b> 0.0870	<b>57:</b> v
	<b>35:</b> 0.0638	
	<b>36:</b> 0.0769	
	<b>37:</b> 0.15	