Brian — PS 17 — 2025-04-11 — Solution

EIWL3 Sections 39 and 40

Exercises from *EIWL3* Section 39

```
In[ ]:= (* 39.1 *) {x, x + 1, x + 2, x^2} /. x → RandomInteger[100]
```

```
Out[ ]=
       {98, 99, 100, 9604}
```

```
In[ ]:= (* 39.2 *) {x, x + 1, x + 2, x^2} /. x :→ RandomInteger[100]
```
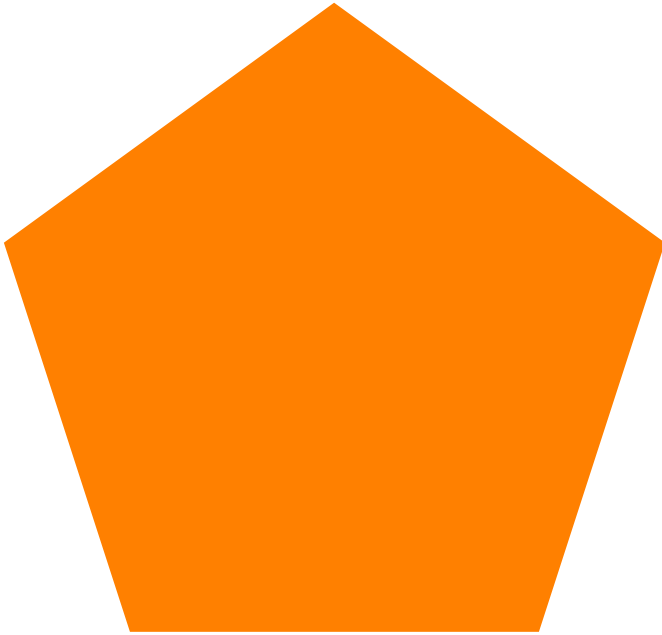
```
Out[ ]=
       {14, 51, 54, 1681}
```

Exercises from *EIWL3* Section 40

```
In[1]:= (* 40.1 *) f[x_] := x^2
```

```
In[10]:= f[13]
```

```
Out[10]=
       169
```

```
In[14]:= (* 40.2 *) poly[n_Integer] := Graphics[Style[RegularPolygon[n], Orange]]
```

In[15]:= **poly[5]**

Out[15]=

In[16]:= **(* 40.3 *) reverse[{a_, b_}] := {b, a}**

In[17]:= **reverse[{"Bishop", "Mammoth"}]**

Out[17]=

{Mammoth, Bishop}

In[18]:= **(* 40.4 *) productOverSum[x_, y_] :=** $\dfrac{x\,y}{x + y}$

In[19]:= **productOverSum[2, 3]**

Out[19]=

$\dfrac{6}{5}$

In[20]:= **(* 40.5 *) sumDifferenceAndRatio[{first_, second_}] :=**
{first + second, first – second, first / second}

In[22]:= **sumDifferenceAndRatio[{99, 11}]**

Out[22]=

{110, 88, 9}

In[31]:= **(* 40.6 *) evenodd[0] = Red**

Out[31]=

In[32]:= **evenodd[n_Integer] := If[EvenQ[n], Black, White]**

In[33]:= `evenodd /@ Range[0, 5]`

Out[33]=

{■ , □ , ■ , □ , ■ , □}

In[37]:= `(* 40.7 *) f[1, second_, third_] := second + third`

In[38]:= `f[2, second_, third_] := second third`

In[39]:= `f[3, second_, third_] := second`^{third}

In[40]:= `f[#, 3, 5] & /@ {1, 2, 3}`

Out[40]=

{8, 15, 243}

In[43]:= `(* 40.8 *) f[0] = 1;`

In[42]:= `f[1] = 1;`
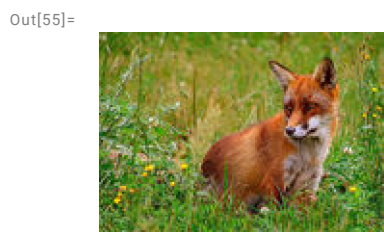
In[44]:= `f[n_Integer] := f[n - 1] + f[n - 2]`

In[46]:= `f /@ Range[5]`

Out[46]=

{1, 2, 3, 5, 8}

In[54]:= `(* 40.9 *) animal[animal_String] := Interpreter["Animal"][animal]["Image"]`

In[55]:= `animal["fox"]`

Out[55]=

In[56]:= `(* 40.10 *) nearwords[word_String, n_Integer] := Nearest[WordList[], word, n]`

In[59]:= `nearwords["supercalifragilisticexpialidocious", 5]`

Out[59]=

{materialistically, perspicacious, probabilistically, supercilious, superficiality}