

# Task 1

Define:

```
text ← 'three short words'
```

Write an expression to count the number of "r"s ( ' r ' ) in `text`

```
rs
```

3

Write an expression to count the number of spaces ( ' ' ) in `text`

```
spaces
```

2

Put the expressions into your submission:

```
rs ← ...
```

```
spaces ← ...
```

# Task 2

Write a function `AgeInMonths` to convert years into months

```
AgeInMonths 33
396
AgeInMonths 26 35 12 17 65
312 420 144 204 780
```

Put the function definition into your submission:

```
AgeInMonths ← {...}
```

# Task 3

Write a function `NumberIn` which counts the number of occurrences of the single letter left argument that appear in the right argument.

3 `NumberIn` 1 3 3 4 7 2 3 4 3 1

4

3 `NumberIn` 8 17 3 4 5 3 6

2

'i' `NumberIn` 'mississippi'

4

'i' `NumberIn` 'applesauce'

0

'p' `NumberIn` 'applesauce'

2

Put the function definition into your submission:

```
NumberIn ← {...}
```

# Task 4

Two variables give the order prices and quantities of five products.

```
prices ← 5 7.99 12.99 3.5 16  
quantities ← 3 6 12 5 3
```

Write an expression which uses `prices` and `quantities` to compute the total cost of the order across all products.

```
order_total  
284.32
```

Put the expression into your submission:

```
order_total ← ...
```

# Task 5

Two variables give the distances travelled (m) and mean average speeds (m/s) of four runners.

```
distances ← 325 412 290 150
speeds ← 6 7 5 3
```

Write an expression which uses `speeds` and `distances` to compute the total time taken by all runners.

```
total_time    a Rounded to nearest millisecond
221.024
```

Put the expression into your submission:

```
total_time ← ...
```

# Task 6

Write an function `Multiples` to count the number of elements in its right argument  $w$  which are exact multiples of its left argument  $\alpha$

```
3 Multiples 12 3 5 2 7 9
3
5 Multiples 5 3 25 6 15 7 9 10
4
7 Multiples 130
4
```

Put the function definition into your submission:

```
Multiples ← {...}
```

# Task 7

A recipe serving 4 uses 3 eggs. Write a function `Eggs` which computes the number of eggs which need cracking to serve  $w$  people. A fraction of an egg requires that a whole egg is cracked.

1	Eggs	1
0	Eggs	0
3	Eggs	3
3	Eggs	4
1 2 3 3 4 5 6 6 7 8	Eggs	10

Put the function definition into your submission:

`Eggs ← {...}`

# Task 8

Write an function To that generates integers from  $\alpha$  to  $\omega$  inclusive. You may assume that  $\alpha < \omega$ .

1 To 10

1 2 3 4 5 6 7 8 9 10

4 To 10

4 5 6 7 8 9 10

-3 To 5

-3 -2 -1 0 1 2 3 4 5

Put the function definition into your submission:

To  $\leftarrow$  {...}



# Task 9

These are the temperatures for 7 days, Sunday through Saturday:

```
t_allweek←11.7 8.6 9.7 14.2 6.7 11.8 9.2
```

Compute the average temperature for the week:

```
      t_mean  
10.27142857
```

Round t\_allweek:

```
12 9 10 14 7 12 9
```

Round t\_mean to 1 decimal:

```
10.3
```

Put the expressions into your submission:

```
t_mean ← ...
```

*APL expression which rounds t\_allweek to nearest whole number*

*APL expression which rounds t\_allweek to 1 decimal place*

# Task 10

`t_allweek` are temperatures in degrees Celsius.

For any temperature  $t_C$  in degrees Celsius, the corresponding temperature  $t_F$  in Fahrenheit is

$$t_F = \left(\frac{9}{5}t_C\right) + 32.$$

Write a function `CtoF` to convert temperatures from degrees Celsius to degrees Fahrenheit.

```
CtoF 32
89.6
CtoF 0
32
CtoF -40
-40
CtoF t_allweek
53.06 47.48 49.46 57.56 44.06 53.24 48.56
```

Put the function definition into your submission:

```
CtoF ← {...}
```

## Task 11 (Bonus)

How many days in `t_allweek` had a temperature between 8.0 and 10.0 degrees exclusive? You will need to use logical functions `<` and `>`

```
temperate_days
```

3

Put the expression into your submission:

```
temperate_days ← ...
```

## Task 12 (Bonus)

Write a function `CountVowels` that counts instances of the letters 'aeiou' in its right argument.

```
CountVowels 'how many vowels?'
```

4

```
CountVowels 'here there are sixteen vowels in this sentence'
```

16

Put the function definition into your submission:

```
CountVowels ← {...}
```