Michael Doherty

Part A (in C):

```
Part A test1:
Please enter a math expression.
2*3+4*5
The input expression : 2*3+4*5
Enter Expression : digit is 2
Enter Term : digit is 2
Enter Factor: digit is 2
Enter Factor: digit is 3
factor1 * factor2 : 2 * 3 = 6
Enter Term : digit is 4
Enter Factor: digit is 4
Enter Factor: digit is 5
factor1 * factor2 : 4 * 5 = 20
product1 + product2 : 6 + 20 = 26
**Parsing successful!
result = 26
```

```
Part A test2:
Please enter a math expression.
k2*3+4*5
The input expression : k2*3+4*5
Enter Expression : digit is k
Enter Term : digit is k
Enter Factor: digit is k
Error: Invalid digit found: k
```

```
Part A test3:
Please enter a math expression.
8/2-1*3
The input expression : 8/2-1*3
Enter Expression : digit is 8
Enter Term : digit is 8
Enter Factor: digit is 8
Enter Factor: digit is 2
factor1 / factor2 : 8 / 2 = 4
Enter Term : digit is 1
Enter Factor: digit is 1
Enter Factor: digit is 3
factor1 * factor2 : 1 * 3 = 3
product1 - product2 : 4 - 3 = 1
**Parsing successful!
result = 1
```

```
Part A test4:
Please enter a math expression.
8/(4-2)
The input expression : 8/(4-2)
Enter Expression : digit is 8
Enter Term : digit is 8
Enter Factor: digit is 8
Enter Expression : digit is 4
Enter Term : digit is 4
Enter Factor: digit is 4
Enter Term : digit is 2
Enter Factor: digit is 2
product1 - product2 : 4 - 2 = 2
factor1 / factor2 : 8 / 2 = 4
**Parsing successful!
result = 4
```

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```
Part A test5:
Please enter a math expression.
8*(4-2)+7
The input expression : 8*(4-2)+7
Enter Expression : digit is 8
Enter Term : digit is 8
Enter Factor: digit is 8
Enter Expression : digit is 4
Enter Term : digit is 4
Enter Factor: digit is 4
Enter Term : digit is 2
Enter Factor: digit is 2
product1 - product2 : 4 - 2 = 2
factor1 * factor2 : 8 * 2 = 16
Enter Term : digit is 7
Enter Factor: digit is 7
product1 + product2 : 16 + 7 = 23
**Parsing successful!
result = 23
```

Part B (in Python):

```
Part B test1:
Please enter a math expression:
2+3+4+5
The answer is:  14.0
```

```
Part B test2:
Please enter a math expression:
20*5-4*10
The answer is:  60.0
```

```
Part B test3:
Please enter a math expression:
20*5 / 4*5
The answer is:  125.0
```

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```
Part B test4:
Please enter a math expression:
20*5 / (4*5)
The answer is:  5.0
```

Part C (in C++):

```
Part C test1:
Please enter a math expression.
2*3+4*5
The input expression : 2*3+4*5
Enter Expression : digit is 2
Enter Term : digit is 2
Enter Factor: digit is 2
Enter Factor: digit is 3
factor1 * factor2 : 2 * 3 = 6
Enter Term : digit is 4
Enter Factor: digit is 4
Enter Factor: digit is 5
factor1 * factor2 : 4 * 5 = 20
product1 + product2 : 6 + 20 = 26
**Parsing successful!
result = 26
```

```
Part C test2:
Please enter a math expression.
k2*3+4*5
The input expression : k2*3+4*5
Enter Expression : digit is k
Enter Term : digit is k
Enter Factor: digit is k
Error: Invalid digit found: k
```

```
Part C test3:
Please enter a math expression.
8/2-1*3
The input expression : 8/2-1*3
Enter Expression : digit is 8
Enter Term : digit is 8
Enter Factor: digit is 8
Enter Factor: digit is 2
factor1 / factor2 : 8 / 2 = 4
Enter Term : digit is 1
Enter Factor: digit is 1
Enter Factor: digit is 3
factor1 * factor2 : 1 * 3 = 3
product1 - product2 : 4 - 3 = 1
**Parsing successful!
result = 1
```

```
Part C test4:
Please enter a math expression.
8/(4-2)
The input expression : 8/(4-2)
Enter Expression : digit is 8
Enter Term : digit is 8
Enter Factor: digit is 8
Enter Expression : digit is 4
Enter Term : digit is 4
Enter Factor: digit is 4
Enter Term : digit is 2
Enter Factor: digit is 2
product1 - product2 : 4 - 2 = 2
factor1 / factor2 : 8 / 2 = 4
**Parsing successful!
result = 4
```

```
Part C test5:
Please enter a math expression.
8*(4-2)+7
The input expression : 8*(4-2)+7
Enter Expression : digit is 8
Enter Term : digit is 8
Enter Factor: digit is 8
Enter Expression : digit is 4
Enter Term : digit is 4
Enter Factor: digit is 4
Enter Term : digit is 2
Enter Factor: digit is 2
product1 - product2 : 4 - 2 = 2
factor1 * factor2 : 8 * 2 = 16
Enter Term : digit is 7
Enter Factor: digit is 7
product1 + product2 : 16 + 7 = 23
**Parsing successful!
result = 23
```