

Canonical Solutions: Python Exercises

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Part 1

```
import sys

if sys.argv[1] == "A":
    print(int(sys.argv[2]) + int(sys.argv[3]))
elif sys.argv[1] == "B":
    print(sum([int(x) for x in sys.argv[2:]])
elif sys.argv[1] == "C":
    print([int(x) for x in sys.argv[2:] if int(x) % 3 == 0])
elif sys.argv[1] == "D":
    def fibonacci(x):
        return 1 if x in (0,1) else fibonacci(x - 1) + fibonacci(x - 2)
    print([fibonacci(x) for x in range(int(sys.argv[2]))])
elif sys.argv[1] == "E":
    print([x**2-3*x+2 for x in range(int(sys.argv[2]), int(sys.argv[3])+1)])
elif sys.argv[1] == "F":
    a, b, c = [float(x) for x in sys.argv[2:5]]
    if a + b <= c or a + c <= b or b + c <= a:
        print("Error - bad side lengths")
    else:
        p = (a + b + c) / 2
        print((p*(p-a)*(p-b)*(p-c))**0.5)
elif sys.argv[1] == "G":
    print({x: sys.argv[2].lower().count(x) for x in "aeiou"})
```

Part 2

```
s = sys.argv[1]

print("#1: %s" % s[2])
print("#2: %s" % s[4])
print("#3: %s" % len(s))
print("#4: %s" % s[0])
print("#5: %s" % s[-1])
print("#6: %s" % s[-2])
print("#7: %s" % s[3:8])
print("#8: %s" % s[-5:])
print("#9: %s" % s[2:])
print("#10: %s" % s[::2])
print("#11: %s" % s[1::3])
print("#12: %s" % ''.join(reversed(s)))
print("#13: %s" % s.find(" "))
print("#14: %s" % s[:-1])
print("#15: %s" % s[1:])
print("#16: %s" % s.lower())
print("#17: %s" % s.split())
print("#18: %s" % len(s.split()))
print("#19: %s" % [x for x in s]) #or list(s)
print("#20: %s" % ''.join(sorted([x for x in s])))
print("#21: %s" % s.split()[0])
print("#22: %s" % (s == s[::-1])) #or s == ''.join(reversed(s))
```