ANSWER KEY

Activity and Lab Keys

Keys for every lab and activity sheet in this lesson, in day order.

How to grade: Use the sample answers below. Give full points when an answer has the sample's idea, in any words. Give part of the points when it is partly right.

A student's code doesn't have to match the sample code. Any code that does the same job earns the points.

Not sure a student's code works? Open the game link on the ONLINE sheet, type the student's code in place of the code there, and press Check.

Day 1 activity: Operator Relay

Points: Each program is worth 2 points: 1 for the variable box and 1 for the exact output. The sheet is worth 6 points.

#	Sample answer
Program 1	Every box lists all of its values in order, and the What prints? box matches the trace key below the table.
Program 2	Every box lists all of its values in order, and the What prints? box matches the trace key below the table.
Program 3	Every box lists all of its values in order, and the What prints? box matches the trace key below the table.

Trace key: Program 1: Darby's trick points

```
1  points = 6
2  points *= 4
3  points //= 5
4  print(points)
```

points	
~~6~~ ~~24~~ 4	

What prints?

Output
4

Trace key: Program 2: Isaac's snack money

```
1  cash = 9
2  cash /= 2
3  cash *= 4
4  print(cash)
```

cash		
~~9~~	~~4.5~~	18.0

What prints?

Output

```
18.0
```

Trace key: Program 3: Sloane's number puzzle

```
1  size = 3
2  size **= 2
3  size %= 4
4  size = -size
5  print(size)
```

size			
~~3~~	~~9~~	~~1~~	-1

What prints?

Output

```
-1
```

Day 2 lab: Warm-Up Arcade

Points: Each task is worth 6 points: 2 for the code the student writes, 2 for the exact output and 2 for the Why answer. The sheet is worth 12 points.

Task 1: Tip Total

1. (2 points) The program does the same job, so the output comes out right.

```python
# Stonebridge Skate Park snack stand
bill = float(input("Bill? "))
tip = int(input("Tip percent? "))
# Test value: turn this line off when you finish.
# bill = 10
# Add the tip to the bill with *=.
bill *= 1 + tip / 100
print(f"Total: ${bill:.2f}")
```

2. (2 points) The output matches the sample output exactly, with the same capital letters and spaces.

Output

```
Bill? 35.00
Tip percent? 10
Total: $38.50
```

3. (2 points) **Sample answer:** The test line ran after the input line and set `bill` to 10. So the bill the user typed was thrown away, and every run used 10. **Look for** an answer that says the test line replaced the typed bill with 10 and Python ran the test line after the input line.

Task 2: Grade Sorter

4. (2 points) The program does the same job, so the output comes out right.

```python
# Stonebridge Skate Park trick class grades
earned = int(input("Points earned? "))
possible = int(input("Points possible? "))
score = earned
# Divide by possible with /=. Then multiply by 100 with *=.
score /= possible
score *= 100
if score >= 90:
    print(f"{score}% is an A")
elif score >= 80:
    print(f"{score}% is a B")
else:
    print(f"{score}% is a C")
```

5. (2 points) The output matches the sample output exactly, with the same capital letters and spaces.

Output

```
Points earned? 33
Points possible? 40
82.5% is a B
```

6. (2 points) **Sample answer:** The Error panel named the line where Python stopped, the `elif` line. That line was missing its colon, so Python couldn't read the program and ran no line at all. **Look for** this idea in the student's own words.

Day 3 activity: 1.1 Quiz Task

Points: The sheet is worth 6 points: 2 for the code the student writes, 2 for the exact output and 2 for the Why answer.

Task 1: Bonus Bug

Bug ticket for Task 1: Bonus Bug

Bug ticket

From: Sloane, Stonebridge Skate Park

What happened: I typed the points I had so far. The screen said I have only 5 points.

What should happen: The program should add 5 bonus points to the points I typed.

We typed: 20

The screen showed:

Output

```
Points so far? 20
Points: 5
```

1. (2 points) The program does the same job, so the output comes out right.

```
# Stonebridge Skate Park bonus points
points = int(input("Points so far? "))
# Every rider who finishes the course gets 5 bonus points.
points += 5
print(f"Points: {points}")
```

2. (2 points) The output matches the sample output exactly, with the same capital letters and spaces.

Output

```
Points so far? 13
Points: 18
```

3. (2 points) **Sample answer:** Python reads `=+ 5` as `= +5`, so the line stored 5 in `points` and threw the old value away. The update operator `+=` has the plus sign first, so it adds 5 to the old value. **Look for** an answer that says `=+ 5` reads as `= +5`, which sets the value to 5 and `+=` adds to the old value.