Year 10 Interleaved Homework 10

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1. Complete the following mathematical questions:

a. 2 ** 6

  64

b. 250 // 8

  31

c. 234 / 16
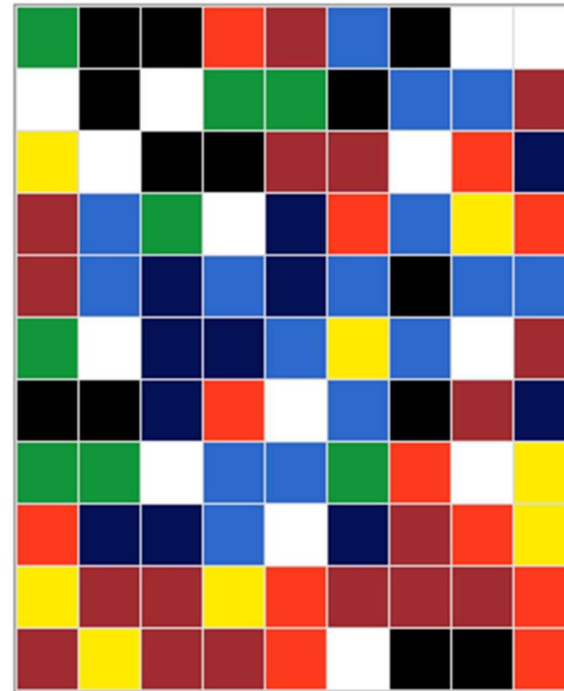
  14.625

d. (27 − 7) ** 2 % 15

  10

2. Place the following data size in order from smallest (1) to largest (4):

Order (1-4)	
800000b	3
0.005MB	2
25000KB	4
1000B	1

3. Here is a bitmap image:

c. **Define the term "colour depth"**

  Number of bits used to determine a colour of a single pixel

b. **The image is a 9 pixel by 11 pixel image with 8 colours – calculate the file size in Bytes.**

  9*11 = 99 $\log_2(8) = 3$ 99*3 = 297 Bits

  297/8 = 31.125 Bytes

c. State what would happen to the file size if the image had 14 colours instead of 8 colours.

> The file size would increase – double

4. The following snippets of Python code all have mistakes. Rewrite them correctly:

a. int(input(("Enter age"))

> int(input("Enter age"))

b. a = "5"
b = 2
print(a + b)

> a = 5; b = 2; print(a+b)

c. name = input("enter name")
print(f your name is: {name})

> name = input("Enter name")
> print(f"Your name is: {name}")

d. age = input("enter age")
name = input("enter name")
Print("your name is" name "your age is" age)

> age = input("Enter Age")
> name = input("Enter Name")
> print("Your name is", name, "Your age is", Age)

5. Write a Python function that calculates the total cost of toys that Santa wants to produce. The function should take into account the following information:

Costs per toy types are:

- **Skateboard Toy**: £3.00 each
- **Train Set Toy**: £2.00 each
- **Lego Set Toy**: £4.00 each

The program should:

- Prompt Santa to input the total number of toys he wishes to produce.
- Ask Santa to specify the type of toy (e.g., Skateboard, Train Set, Lego Set).
- The prompt should repeat until a valid toy type is entered.
- Once the valid input is given, output the total cost of producing the toy order.

Ensure to apply proper indentation, use meaningful variable names, and adhere to Python syntax in your response.

> toycount = int(input("Enter toy count"))
> toytype = input("Enter toy type")
> while toytype not in ["Skateboard", "Train set", "Lego set"]:
>   toytype = input("Enter toy type")
> if toytype == "Skateboard":
>   print(toycount * 3)
> elif toytype == "Train set":
>   print(toycount * 2)
> elif toytype == "Lego set":
>   print(toycount * 4)