

1. You have been given a physical balance and 7 weights of 52, 50, 48, 44, 45, 46 and 78 kgs. Keeping weights on one pan and object on the other, what is the maximum you can weigh less than 183 kgs.

- a. 180  
c. 182
- b. 181  
d. 178

Answer: A

**Explanation:**

$$52+50+78 = 180$$

2. Two consecutive numbers are removed from the progression 1, 2, 3, ...n. The arithmetic mean of the remaining numbers is  $26 \frac{1}{4}$ . The value of n is

- a. 60  
c. 50
- b. 81  
d. Cannot be determined

Answer: C

**Explanation:**

As the final average is  $105/4$ , initial number of pages should be 2 more than a four multiple. So in the given options, we will check option C.

$$\text{Total} = n(n+1)/2 = 50 \times 51 / 2 = 1275$$

$$\text{Final total} = 48 \times 105 / 4 = 1260$$

So sum of the pages = 15.

The page numbers are 7, 8

3. A certain function f satisfies the equation  $f(x)+2*f(6-x)=x$  for all real numbers x. The value of f(1) is

- a. 1  
c. 3
- b. 2  
d. Cannot be determined

Answer: C

**Explanation:**

$$\text{Put } x = 1 \Rightarrow f(1) + 2*f(6-1) = 1 \Rightarrow f(1) + 2*f(5) = 1$$

$$\text{Put } x = 5 \Rightarrow f(5) + 2*f(6-5) = 5 \Rightarrow f(5) + 2*f(1) = 5$$

Put  $f(5) = 5 - 2*f(1)$  in the first equation

$$\Rightarrow f(1) + 2*(5 - 2*f(1)) = 1$$

$$\Rightarrow f(1) + 10 - 4f(1) = 1$$

$$\Rightarrow f(1) = 3$$

4. The sum of three from the four numbers A, B, C, D are 4024, 4087, 4524 and 4573. What is the largest of the numbers A, B, C, D?

- a. 1712
- b. 1650
- c. 1164
- d. 1211

Answer: a

**Explanation:**

$$a+b+c=4024$$

$$b+c+d=4087$$

$$a+c+d=4524$$

$$a+b+d=4573$$

Combining all we get  $3(a+b+c+d) = 17208$

$$\Rightarrow a + b + c + d = 5736$$

Now we find individual values.  $a = 1649$ ,  $b = 1212$ ,  $c = 1163$ ,  $d = 1712$ . So maximum value is 1712.

5. Anand packs 304 marbles into packets of 9 or 11 so that no marble is left. Anand wants to maximize the number of bags with 9 marbles. How many bags does he need if there should be atleast one bag with 11 marbles

- a. 33
- b. 32
- c. 31
- d. 30

Answer: B

**Explanation:**

$$\text{Given } 9x + 11y = 304.$$

$$x = \frac{304 - 11y}{9}$$

So  $y = -1$  satisfies. Now  $x = 35$ . But  $y$  cannot be negative.

Now other solutions of this equation will be like this. Increase or decrease  $x$  by 11, decrease or increase  $y$  by 9.

So we have to maximise  $x$ . next solution is  $x = 24$  and  $y = 8$ . So bags required are 32.

6. Find the number of zeroes in the expression  $15^{32} \cdot 25^{22} \cdot 40^{75} \cdot 98^{112} \cdot 125$

- a. 12
- b. 9
- c. 14
- d. 7

Answer: B

**Explanation:**

Maximum power of 5 in the above expression can be calculated like this. Count all the powers of 5 in the above expression. So number of zeroes are 9