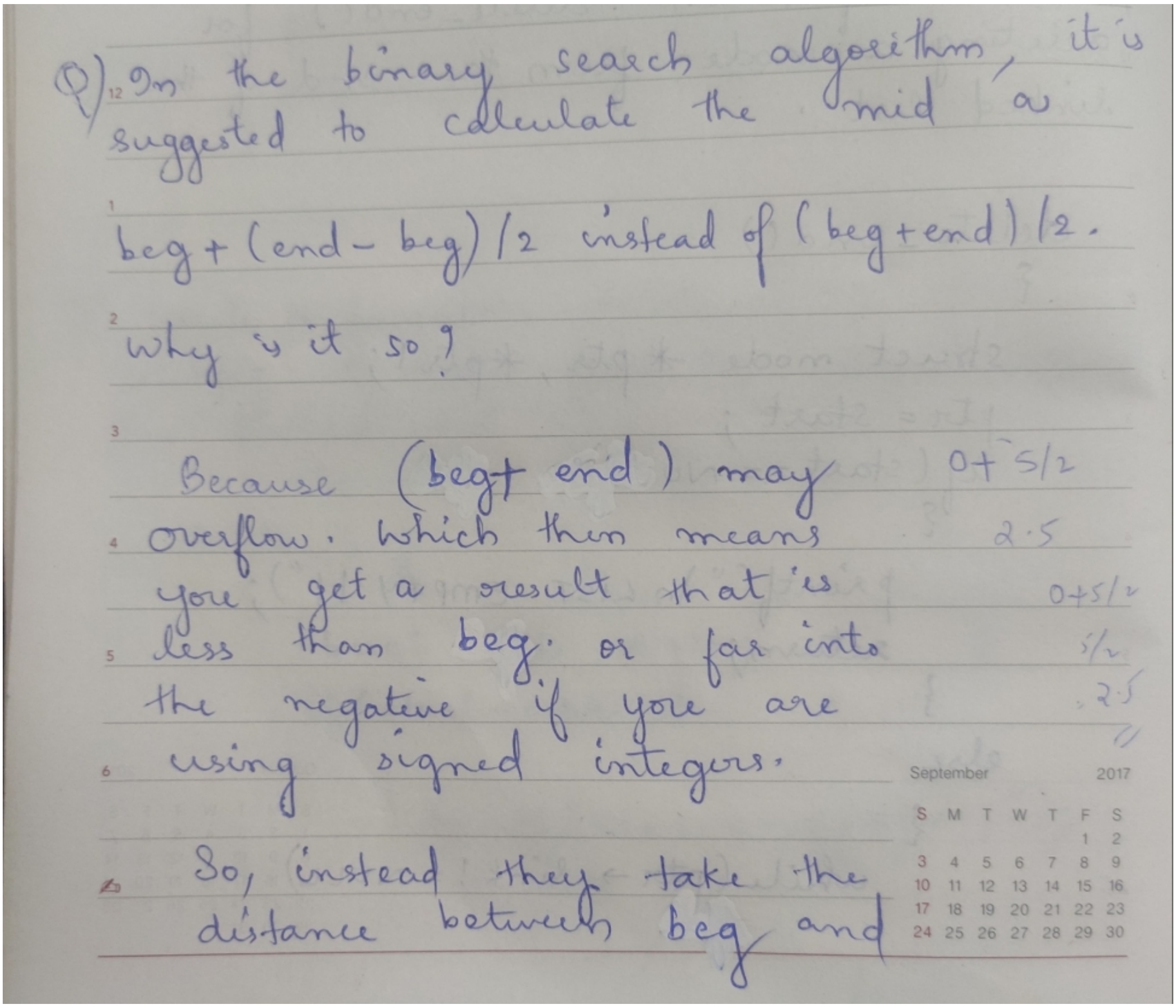

Q) In the binary search algorithm, it is suggested to calculate the mid as

beg + (end - beg)/2 instead of (beg+end)/2.

why is it so?

Because (beg+ end) may overflow. Which then means you get a result that is less than beg. or far into the negative if you are using signed integers.

So, instead they take the distance between beg and

0+5/2

2.5

0+5/2

5/2

2.5

September 2017

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

end and add half of that to beg. This is only a single extra operation to make the algorithms more robust.

Q) Write the algorithm / function for Ternary Search.

```
int ternary_search(int l, int r, int x)
  {
      if(r>=1)
       {
          int mid1 = l+(r-l)/3;
          int mid2 = r-(r-l)/3;
          if(ar[mid1]==x)
                return mid1;
          if(ar[mid2]==x)
                return mid2;
          if(x<ar[mid1])
             return ternary_search(l, mid1-1, x);
          else if(x>ar[mid2])
             return ternary_search(mid2+1, r, x);
          else return ternary_search(mid1+1, mid2-1, x);
       }
       return -1;
  }
```

October 2017

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				