

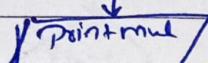
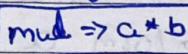
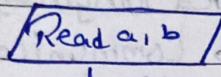
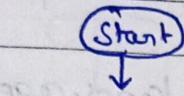
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Assignment
Solutions

Date

✓ Assignments → 1

① flow chart



→ Start

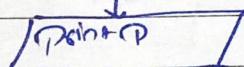
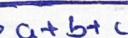
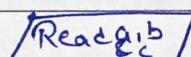
→ Read Take i/p for a & b

→ calculate multiple of a * b.

→ Print multiple.

→ end.

② Perimeter of triangle. $P \Rightarrow a+b+c$



→ Start

→ Take i/p for a, b, c

→ Calculate Perimeter of a+b+c.

→ Print Perimeter.

→ end.

③ Simple interest formula.

$$SI \Rightarrow \frac{P \times T \times R}{100} \quad P \Rightarrow \text{Principle} \quad \text{Amount} \Rightarrow P + I$$

T ⇒ Interest Time

R ⇒ interest

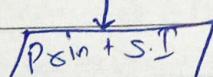
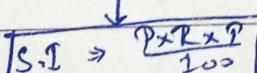
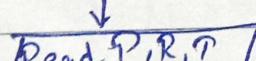
→ Start

→ Take i/p for P, R, T

$$\rightarrow SI \Rightarrow \frac{P \times R \times T}{100}$$

→ Print + SI

→ end.



Date / /

12200
100%
0.21%

Find Compound interest.

Compound Interest formula.

$$A = P \times \left(1 + \frac{R}{100}\right)^T$$

• $A \Rightarrow$ Amount after time

• $P \Rightarrow$ Principal amount (initial money).

• $R \Rightarrow$ Annual interest rate (%)

• $T \Rightarrow$ Time in years

then,

Compound Interest (I) $\Rightarrow A - P$.

For ex.

If you invest ₹ 10,000 at 10% annual interest for 2 years:

$$A \Rightarrow 10000 \times \left(1 + \frac{10}{100}\right)^2 \Rightarrow 10000 \times (1.1)^2$$

$$\Rightarrow 10000 \times 1.21 \Rightarrow ₹ 12100.$$

Compound interest.

$$\Rightarrow 12100 - 10000$$

$$\Rightarrow ₹ 2100.$$

Find Simple interest.

Simple interest formula.

$$SI \Rightarrow P \times \frac{R \times T}{100}$$

• $SI \Rightarrow$ Simple interest.

• $P \Rightarrow$ Principle amount (initial money)

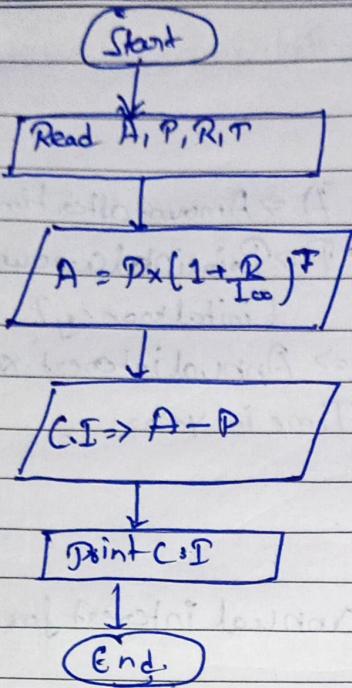
• $R \Rightarrow$ Rate of interest per annum (%)

• $T =$ Time in years

If you have ₹ 5000 at 8% annual interest for 3 years:

$$SI \Rightarrow \frac{5000 \times 8 \times 3}{100} \Rightarrow \frac{120000}{100} \Rightarrow ₹ 12000$$

Flowchart



Algorithm

Date

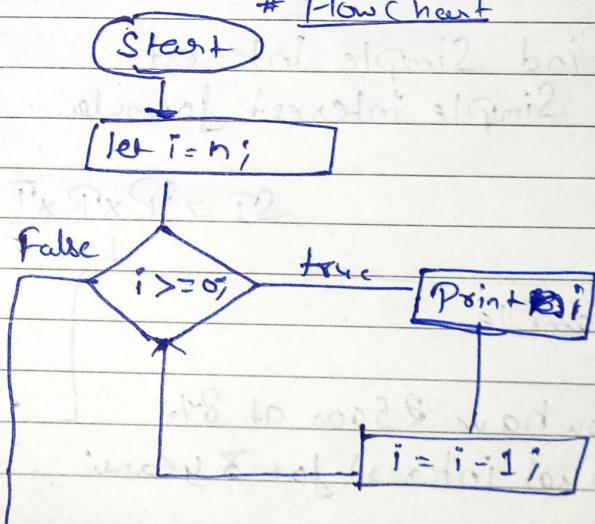
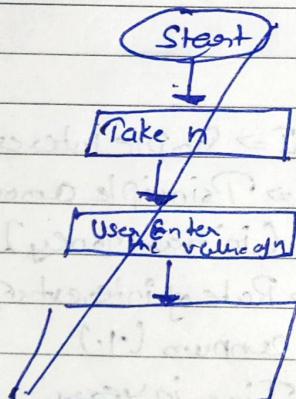
\rightarrow Start
 \rightarrow Take I/P for A, P, R, T
 \rightarrow Calculated Amount with formula $A = P \times (1 + \frac{R}{100})^T$
 \rightarrow Then calculate Compound Interest CI. $\Rightarrow A - P$
 \rightarrow Print Compound interest
 End

Point Counting from N to 1

Logic

```
for (int i=n; i>0; i--) {
  cout << i << endl;
}
```

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Algorithm

→ Start
→ Enter the Value of n

→ if $i \geq 0$

Point \rightarrow true.

Then $i = i - 1$

else

$i \leq 0$ False
end.

Dry Run Condition
Foo (int i=n; i>0; i--) {
Count << i << endl;
}

Date

$n \Rightarrow 5$ $i \Rightarrow 5 \Rightarrow 5 > 0 \rightarrow \text{True}$
 ↓ Point $\rightarrow 5$

$i-- \Rightarrow 5 - 1 \Rightarrow 4$

$n \Rightarrow 4$ $i \Rightarrow 4 \Rightarrow 4 > 0 \rightarrow \text{True}$
 ↓ Point $\rightarrow 4$
 $i-- \Rightarrow 4 - 1 \Rightarrow 3$

$n \Rightarrow 3$ $i \Rightarrow 3 \Rightarrow 3 > 0, \text{ True}$
 ↓ Point $\rightarrow 3$
 $i-- \Rightarrow 3 - 1 \Rightarrow 2$

$n \Rightarrow 2$ $i \Rightarrow 2 \Rightarrow 2 > 0, \text{ True}$
 ↓ Point $\rightarrow 2$
 $i-- \Rightarrow 2 - 1 \Rightarrow 1$.

$n \Rightarrow 1$ $i \Rightarrow 1 \Rightarrow 1 > 0, \text{ True}$
 ↓ Point $\rightarrow 1$
 $i-- \Rightarrow 1 - 1 \Rightarrow 0$

$n \Rightarrow 0$ $0 > 0 \rightarrow \text{False} \quad (\text{Stop})$

Find Factorial of a Number.

$$n! = n \times (n-1) \times (n-2) \times \dots \times 1$$

~~$$5! = 5 \times 4 \times 3 \times 2 \times 1$$~~

So,

$$n! = n \times (n-1) \times (n-2) \times \dots \times 1$$

~~$$5! = 5 \times 4 \times 3 \times 2 \times 1$$~~

logical

Factorial $\Rightarrow 1$;

For (int i= ~~0~~; i>0; i--)

{

Factorial *= i;

}

Count << Factorial << endl;

}

Dry Run:

$n \Rightarrow 5$

$F \Rightarrow 1$

$i = 5; 5 > 0; \text{ True}$

$1 \times 5 \Rightarrow 5$

$5 - 1 \Rightarrow 4$

$n \Rightarrow 4$

$F \Rightarrow 2$

$i = 4; 4 > 0; \text{ True}$

$2 \times 5 \Rightarrow 20$

$20 - 1 \Rightarrow 19$

$n \Rightarrow 3$

$F \Rightarrow 1$

$i = 3; 3 > 0, \text{ True}$

$3 \times 1 \Rightarrow 3$

$3 - 1 \Rightarrow 2$

$n \Rightarrow 2$

$F \Rightarrow 1$

$i = 2; 2 > 0, \text{ True}$

$2 \times 1 \Rightarrow 2$

$2 - 1 \Rightarrow 1$

$n \Rightarrow 1$

$F \Rightarrow 1$

$i = 1; 1 > 0, \text{ True}$

$1 \times 1 \Rightarrow 1$

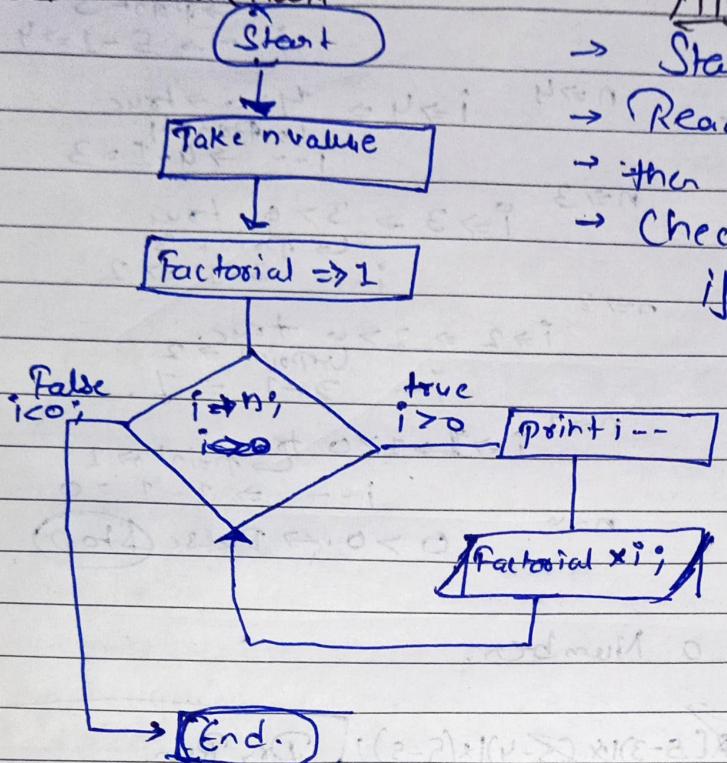
$1 - 1 \Rightarrow 0$

$n = 0$
 $F = 1$
 $i = 0; \text{ False, Stop.}$

$n = 1$
 $F = 1$
 $i = 1; 1 > 0, \text{ True}$
 $1 \times 1 \Rightarrow 1$
 $1 - 1 \Rightarrow 0$

Date

~~Flowchart~~ Flowchart



Algorithm

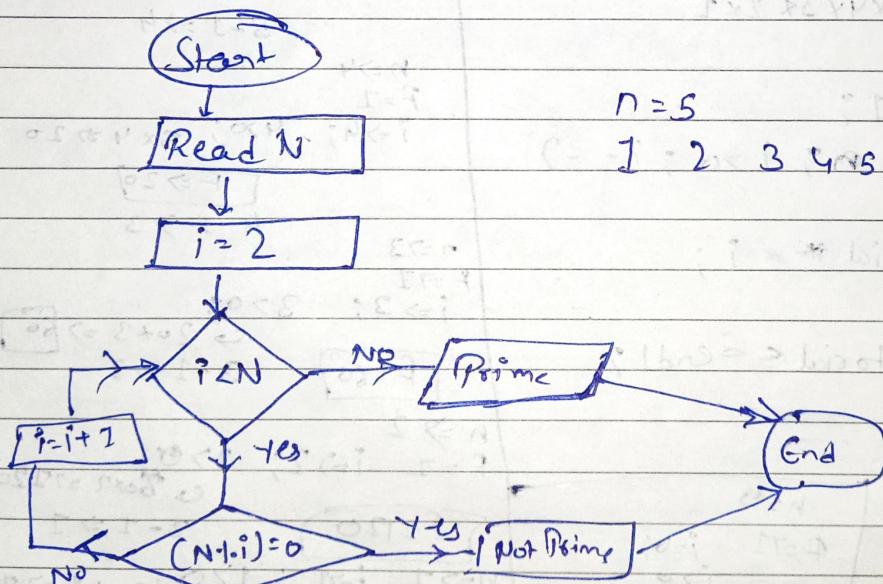
```

→ Start
→ Read the value n.
→ if then Factorial initializes => 1
→ Check Condition.
  if [i > 0]
    print i--
    Factorial * i;
  else
    i <= 0;
    return Factorial
  → End.
  
```

Check if a number is Prime or not.

Prime no. are those no divide by 1 & itself.

1, 2, 3, 5, 7 . . .

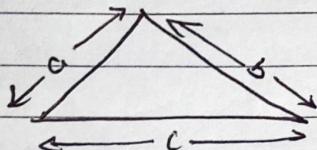


Date

Algorithm

1 Read N
 2 Set i = 2
 3 If $i < N$
 → If $N \neq 1, i = 0$
 • Print "Not Prime"
 • Goto 5
 4 Else $i = i + 2$
 5 Goto 3
 6 Else Print "Prime"
 7 End.

Check Given triangle is valid or not.



Mathematically $\rightarrow (\sum \text{two sides}) > \text{other side}$

$$(a+b) > c$$

$$(b+c) > a$$

$$(a+c) > b$$

e.g. $a=1, b=3, c=0$

$$a+b \Rightarrow 4 > 0 \quad \checkmark$$

~~$$3+0 \quad 3+0 \Rightarrow 3 > 1 \quad \checkmark$$~~

~~$$1+0 \Rightarrow 1 > 3 \quad \times$$~~

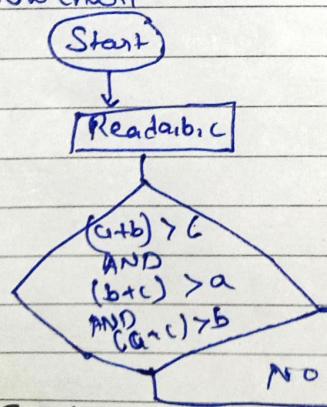
e.g. $a=10, b=20, c=30$

$$① 30 > 20$$

$$② 40 > 10$$

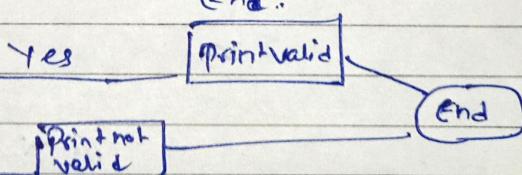
$$③ 30 > 20$$

Flowchart



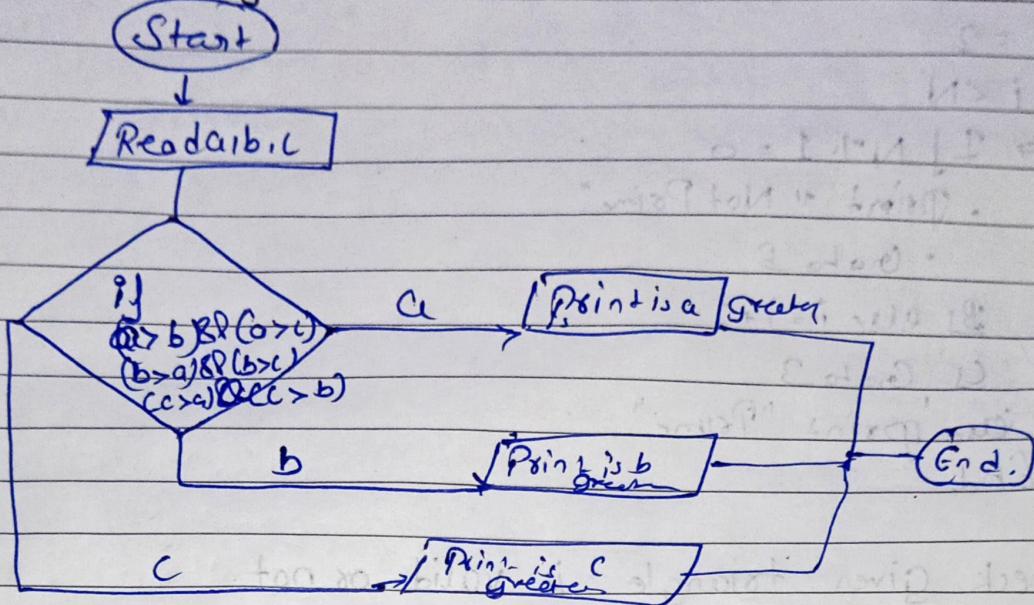
Algorithm

→ Read a, b & c
 → If $(a+b) > c \& (b+c) > a \& (a+c) > b$
 → Print "Valid triangle".
 Else Print "Not valid Δ".
 End.



Date

Print Max of 3 No.



Algorithm (for out 3) - Selection

Read a,b,c (A=0)

Check if Condition?

$a > b \ \& \ a > c$

then Print a greater

else if $b > c \ \& \ b > a$

then Print b greater.

else

$c > a \ \& \ c > b$

then Print c greater.

if $a < b$ then $a = b$

if $b < c$ then $b = c$

"a b c" write

"a b c" write

"a b c" write

