**TOPIC: PYTHON DATA TYPES** **SUBJECT: COMPUTER SCIENCE** **DATE: 13/5/2020** **CLASS -XII**

**Built-in Data Types**

In programming, data type is an important concept.

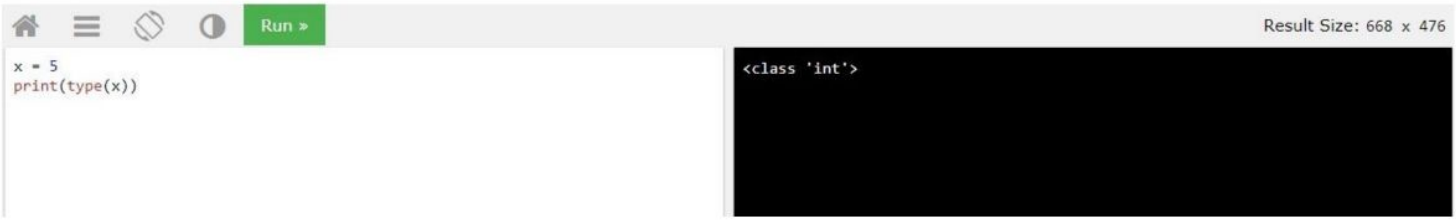
Variables can store data of different types, and different types can do different things.

Python has the following data types built-in by default, in these categories:

| | |
|---|---|
| Text Type: | `str` |
| Numeric Types: | `int`, `float`, `complex` |
| Sequence Types: | `list`, `tuple`, `range` |
| Mapping Type: | `dict` |
| Set Types: | `set`, `frozenset` |
| Boolean Type: | `bool` |
| Binary Types: | `bytes`, `bytearray`, `memoryview` |

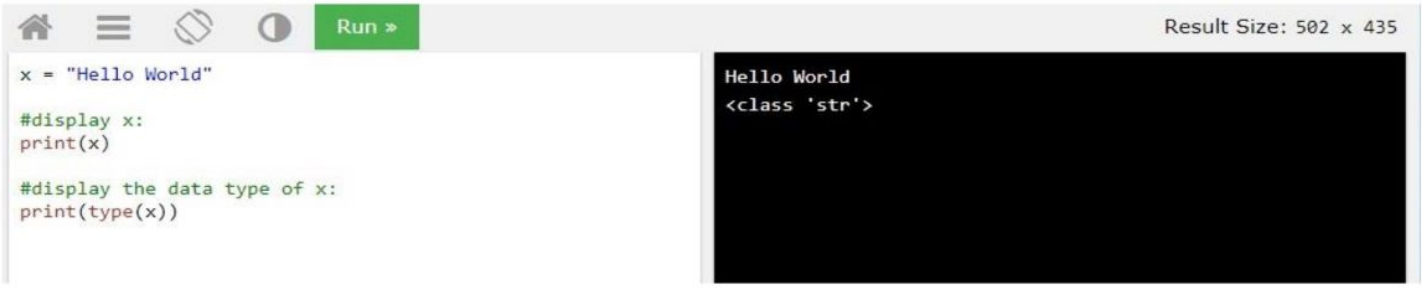
# Getting the Data Type

You can get the data type of any object by using the `type()` function:




# Setting the Data Type

In Python, the data type is set when you assign a value to a variable:




Example1

Run »

Result Size: 502 x 435

```
x = 20

#display x:
print(x)

#display the data type of x:
print(type(x))
```

```
20
<class 'int'>
```

Example2

Run »

Result Size: 502 x 435

```
x = ["apple", "banana", "cherry"]

#display x:
print(x)

#display the data type of x:
print(type(x))
```

```
['apple', 'banana', 'cherry']
<class 'list'>
```

Example 3

Run »

Result Size: 502 x 435

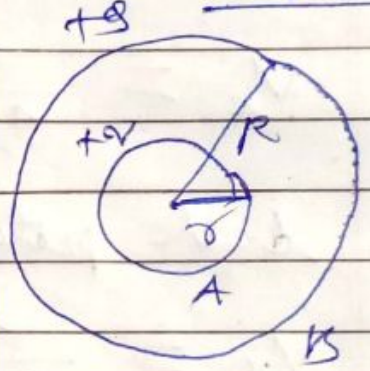
```
x = {"apple", "banana", "cherry"}

#display x:
print(x)

#display the data type of x:
print(type(x))
```

```
{'apple', 'cherry', 'banana'}
<class 'set'>
```

Topic collecting action of a hollow conductor.

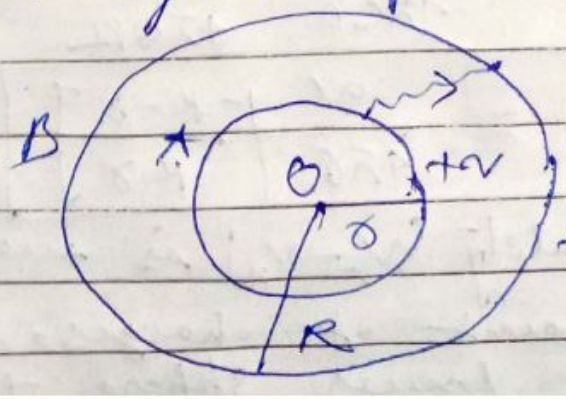
suppose these are two concentric conducting hollow spheres as shown in figure.

figure-1




one is given +q charge and other is given +Q charge.
let (Q > q). if we connect these two spheres by a conducting wire then we will show here that charges always will flow from lower conductor to upper conductor irrespective of the amount of charges present on them.

figure-2



Here first we calculate the potential on the lower sphere and the upper sphere, then we calculate potential difference between them.

Here potential at lower sphere 'A':

$$V_A = \frac{Q}{4\pi\epsilon_0 r} + \frac{Q}{4\pi\epsilon_0 R} = \frac{1}{4\pi\epsilon_0}\left[\frac{Q}{r} + \frac{Q}{R}\right]$$

And potential at upper sphere 'B'

$$V_B = \frac{Q}{4\pi\epsilon_0 R} + \frac{Q}{4\pi\epsilon_0 R} = \frac{1}{4\pi\epsilon_0}\left[\frac{Q}{R} + \frac{Q}{R}\right]$$

Now potential difference between the sphere $V_A - V_B$

$$= \frac{Q}{4\pi\epsilon_0 r} + \frac{Q}{4\pi\epsilon_0 R} - \frac{Q}{4\pi\epsilon_0 R} - \frac{Q}{4\pi\epsilon_0 R}$$

$$\text{or } V_A - V_B = \frac{Q}{4\pi\epsilon_0 r} - \frac{Q}{4\pi\epsilon_0 R} = \frac{Q}{4\pi\epsilon_0}\left[\frac{1}{r} - \frac{1}{R}\right]$$

$$\text{or } \boxed{V_A - V_B = \frac{Q}{4\pi\epsilon_0}\left[\frac{R-r}{Rr}\right]}$$

This quantity $(V_A - V_B)$ is true irrespective of the amounts of charges, so charge will flow from lower sphere to upper sphere

Topic Dimensions! — When a physical quantity (Derived quantity) is broken up in terms of its base quantities then some powers occurs on the base quantities, these powers are called dimensions of the physical quantities.

force = mass × Acc$^{n}$ (accelerations)

here force and acceleration are derived and mass is the base quantity.

$$\text{force} = \text{mass} \times \frac{\text{velocity}}{\text{time}}$$

$$\text{or force} = \text{mass} \times \frac{\frac{\text{displacement}}{\text{time}}}{\text{time}}$$

$$\text{or force} = \frac{\text{mass} \times \text{displacement}}{\text{time}^2}$$

$$\text{or force} = \frac{\text{mass}^1 \times \text{length}^1}{\text{time}^2}$$

19/5/2020

or $[F = [M^1 L^1 T^{-2}]]$

these powers 1, 1, and -2 are called dimensions of force. we say that force is having 1 dimension in mass, 1 dimension in length and -2 dimensions in time.

Similarly work = force × displacement

so work = $[M^1 L^1 T^{-2}] \times$ displacement

or work = $[M^1 L^1 T^{-2}] \times [L^1]$

since displacement is length actually.

so $W = [M^1 L^2 T^{-2}]$ or $W = [ML^2T^{-2}]$

we put square brackets when we deal with dimensions

so work is having one dimension in mass, 2 dimensions in length and -2 dimension in time.

Q) calculate the dimensions of speed, velocity, pressure, Momentum, Impulse, power etc

# SHATABDI PUBLIC SCHOOL

Class – III

Sub – Hindi

Lesson – शब्द

Date – 14.05.2020

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बच्चो पिछले अध्याय में तुमने वर्ण के विषय में पढ़ा . क, प, न, र आदि वर्ण हैं | वर्णों के मेल से ही शब्द बनते है | जैसे - भालू, बंदर

भालू शब्द में दो अक्षर है तो बंदर में तीन हर अक्षर में एक स्वर होता हैं, एक तथा एक से ज्यादा व्यंजन होता है। अर्थात अक्षरो के सार्थक समूह को शब्द कहते है।

प्रत्येक भाषा में अनगिनत शब्द होते है, हर एक शब्द के अर्थ होते है। इस प्रकार अर्थ के आधार पर शब्द के दो प्रकार होते है –

१. सार्थक शब्द

२. निरर्थक शब्द

**१. सार्थक शब्द :-** जो शब्द किसी अर्थ का बोध कराता है सार्थक शब्द कहलाता है। जैसे - आदमी, सड़क, हवाई जहाज इन शब्दों का अर्थ है।

**२. निरर्थक शब्द :-** जिन शब्दों का कोई अर्थ नहीं निकलता उन्हें निरर्थक शब्द कहते हैं। जैसे - कपड़, दाएमी, कड़स आदि।

1. निम्नलिखित प्रशनो के उत्तर लिखें।

    1) शब्द किसे कहते है ? लिखो याद करो |

    2) अर्थ के आधार पर शब्द के कितने प्रकार है ? उदाहरण लिखों और याद करो।

    3) अक्षरो को सहीं क्रम में लिखकर सार्थक शब्द बनाओ।

        a) दामरी .....

        b) वारमसो .....

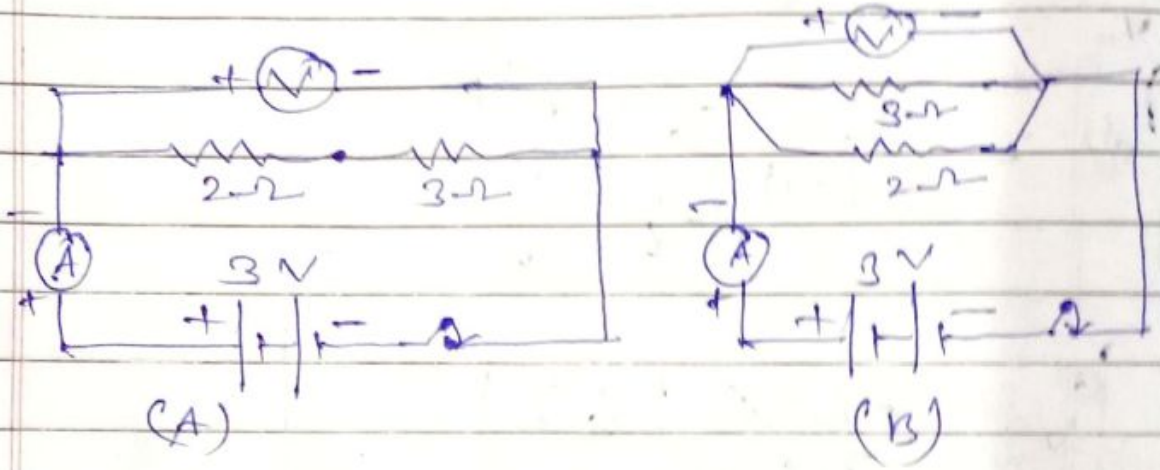
        c) थीहा .....

        d) लागरेड़ी .....

        e) कशाआ .....

        f) मारस्ट .....

Q) 1. Here below two circuits A and B are given. what are the readings of Ammeter and voltmeter in the two circuits?




Here for circuit (A) 2Ω and 3Ω are in series, so total resistance $R = 5\Omega$. voltmeter is across this 5Ω resistance.

so $I = \frac{V}{R} = \frac{3}{5} = 0.6$ amp

0.6 amp will be the reading of Ammeter. Now for voltmeter readings

$V = IR = 0.6 \times 5 = 3$ volt

so 3 volt will be the readings of voltmeter.

Now for the circuit B, 3 Ω and 2 Ω are in parallel and voltmeter is across this resistance. so

$$\frac{1}{R} = \frac{1}{3} + \frac{1}{2} = \frac{2+3}{6} = \frac{5}{6}$$

$$R = \frac{6}{5}\ \Omega$$

Now $I = \frac{V}{R} = \frac{3}{\frac{6}{5}}$

$I = \frac{3 \times 5}{6} = 2.5$ amp, this will be the readings of the ammeter

Now for voltmeter reading

$V = IR = 2.5 \times \frac{6}{5} = 3$ volt

so the voltmeter will read 3 volt once again.

Application of Heating effect of electric current

1) Electric Bulb :- In an electric bulb tungsten (Tungsten) is used as a filament. Tungsten is having

very high resistance and very high melting point almost 3400°C. when current is passed through the filament (tungsten) then it gets heated strongly due to high value of resistance as per $H = I^2Rt$. when heated strongly then it glows and produces heat and light.

2. Electric iron :- Inside the electric iron generally nichrome wire is used due to very high value of resistance. sometimes an alloy of Ni, Cr, Fe is also used. when current is passed then due to high value of resistances it gets heated, and we use this heating effect

H.W Q:- How heating effect of electric current is employed in an electric heater ?

CLASS: IX A
SUB : MATHEMATICS
14-05-2020

H.W
Ex 13.2
Q.no. 3, 4 & 5

classmate
Date
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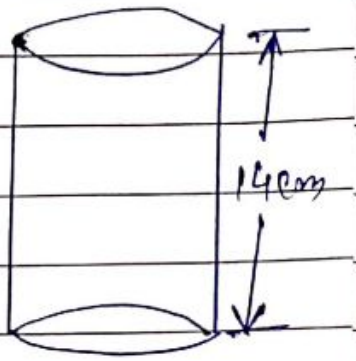
## Ex - 13.2

1. Given: height of the cylinder, $h = 14cm$




$C.S.A = 88cm^2$

i.e $2\pi rh = 88\ cm^2$

$\Rightarrow 2 \times \frac{22}{7} \times r \times 14 = 88$

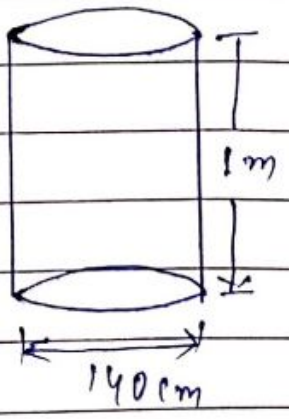
$\Rightarrow 88 \times r = 88$

$\Rightarrow r = 1\ cm$

Thus diameter of the base is $= 2r$
$= 2 \times 1 = 2cm$

2. Height, $h = 1m$

$r = \frac{d}{2} = \frac{140}{2} = 70cm$
$= 0.7m$




Area of Sheet required = T.S.A of the cylinder

$= 2\pi rh + 2\pi r^2$

$= 2\pi r(h + r)$

$= 2 \times \frac{22}{7} \times \frac{0.7}{10} (1 + 0.7)$

$= \frac{44}{10} \times 1.7 = 7.48m^2$



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