

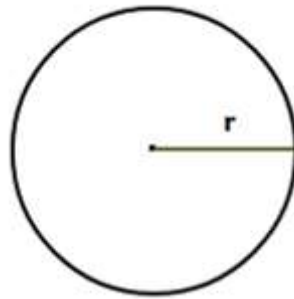
Introduction to Computer Programming

1.2 Variables - Demos



Example:

Find the area of a circle with radius 2 metres



$$A = \pi r^2$$

In [32]:

```
pi = 3.142
r = 2
area = pi * r ** 2
print(area, 'm2')
```

12.568 m2

Casting

The data type of a variable can be converted by *casting*

```
int(variable_name)
```

```
float(variable_name)
```

Example: Convert from a floating point number to an integer

In [3]:

```
b = 1.0
e = int(b)
print(e)
```

1

Example

Volume of a cone: $V = \frac{Ah}{3}$

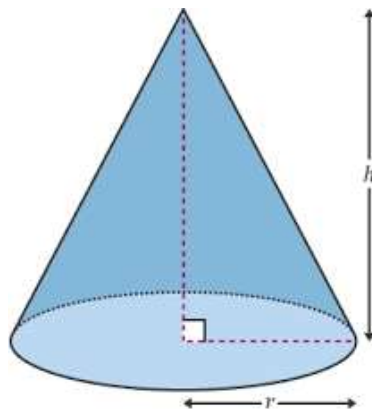
A = area of base

h = height of cone

Find the volume of the cone:

Base radius, $r = 2$ cm

Height, $h = 10$ cm



In [22]:

```
pi = 3.142
r = 2
h = 10

area = pi * r ** 2 # (cm2)

# A can now be used as a variable in other equations

V = area * h / 3 # (cm3)

print(V, 'cm3')
```

41.89333333333333 cm3

Example

Create a variable `a` and assign it a string value.

Create a variable `b` and assign it a string value.

Use an arithmetic operator to connect the **first two** letters of `A` and the **last three** letters of `B` to make a new string.

In [6]:

```
a = 'python'
b = 'snake'

c = a[:2] + b[-3:]
print(c)
```

pyake

In []: