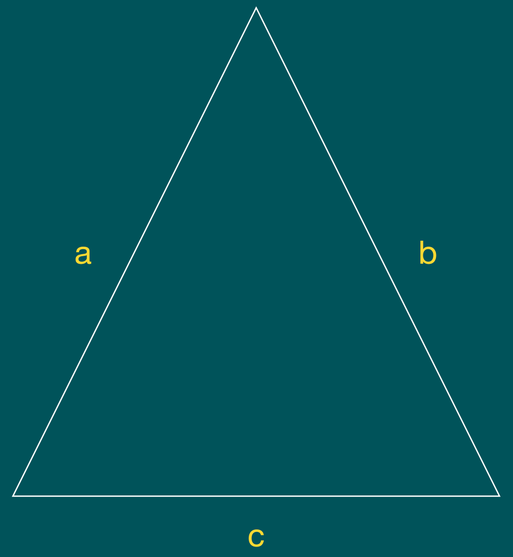
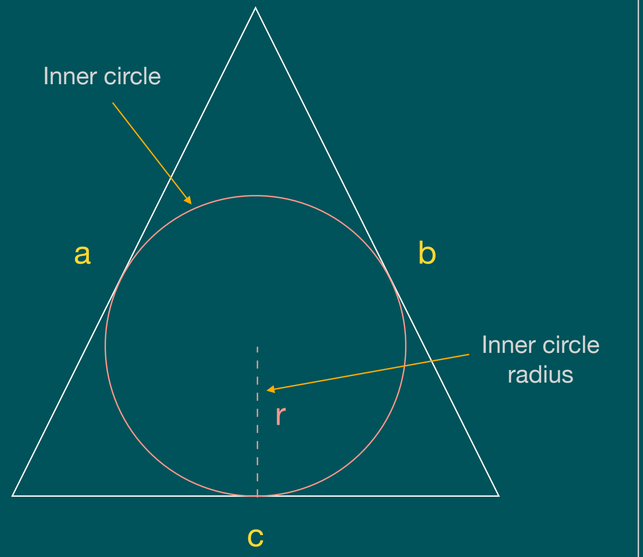
1 - Height of Prism



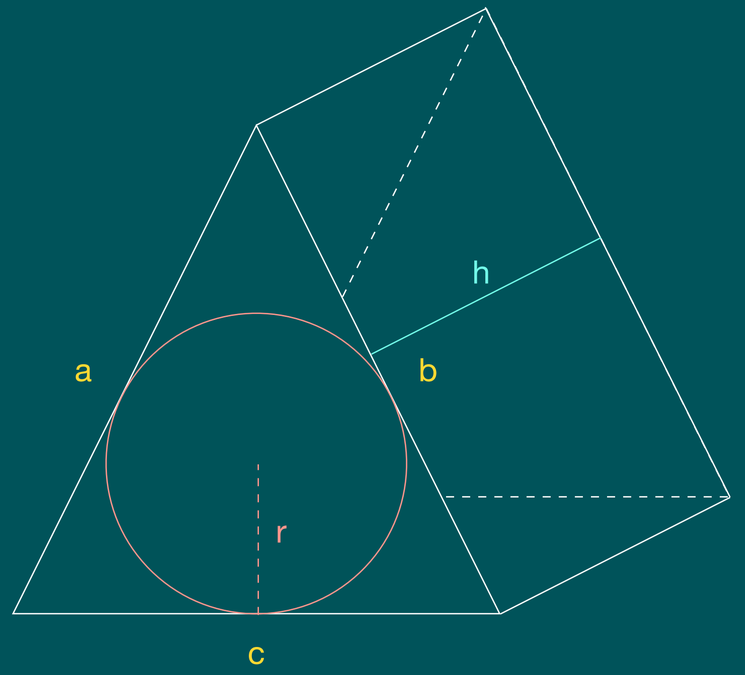
Perimeter of a triangle (P) = a + b + c

Semi Perimeter of a triangle (SP) = P / 2



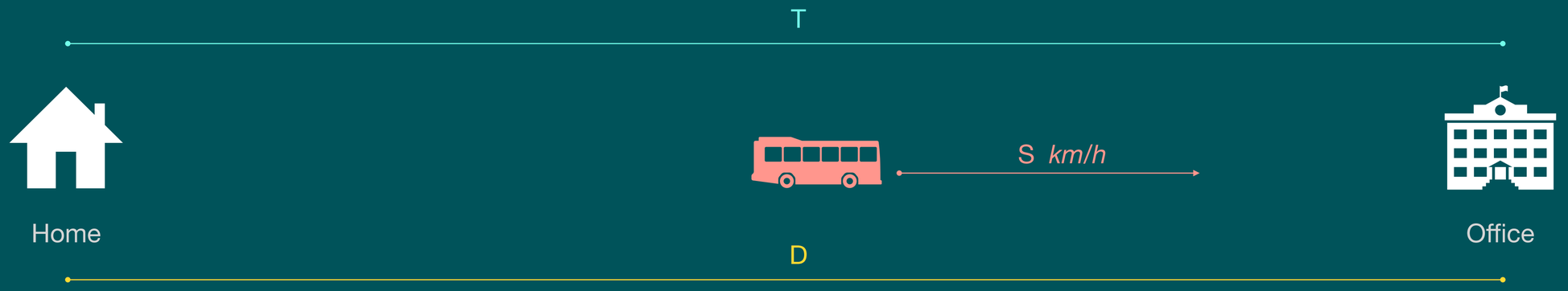
Area of a triangle (A) = r * SP

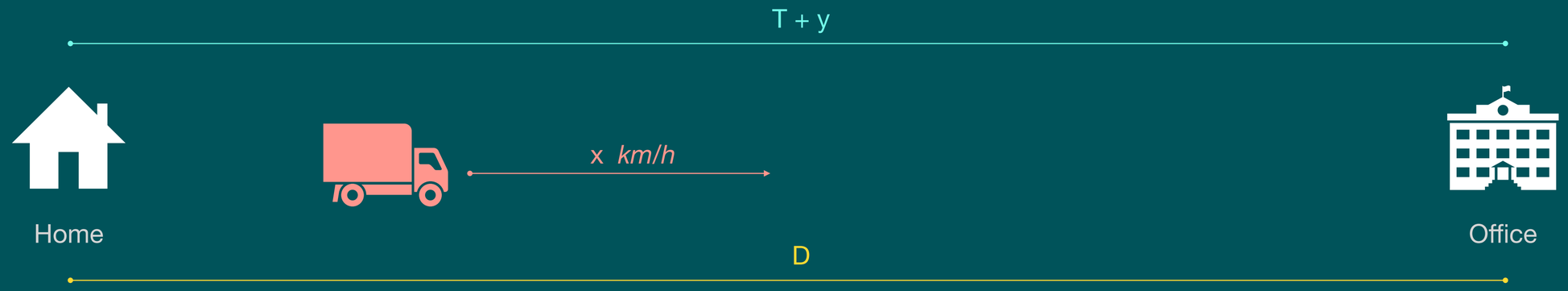
Area of a triangle (A) = r * (P / 2)

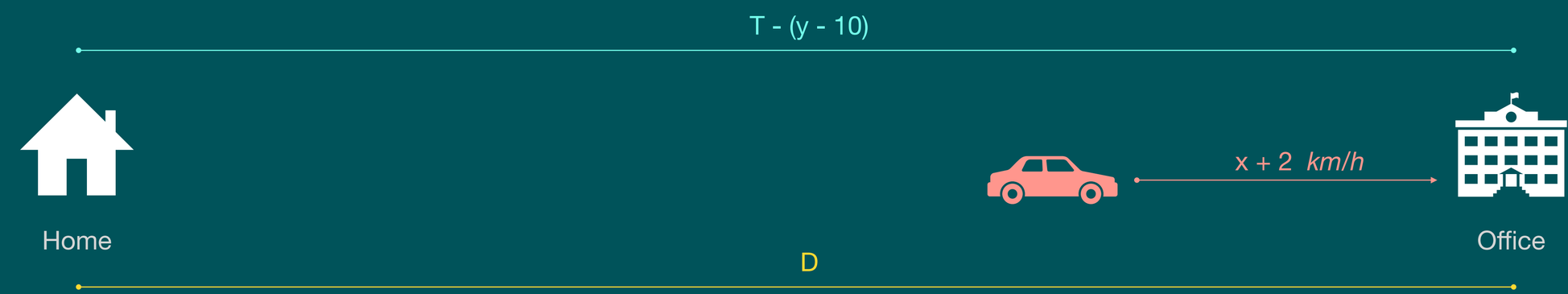


Volume of a Prism (V) = A * h

2 - Distance to Office







2 - Distance to Office

Formula:

$$\text{Speed} = \frac{\text{Distance}}{\text{Time}}$$

$$\text{Distance} = \text{Speed} * \text{Time}$$

Case 1: $D = x * (T + y)$

Case 2: $D = (x + 2) * (T - (y - 10))$

Therefore: $x * (T + y) = (x + 2) * (T - (y - 10))$

$$Tx + xy = (x + 2) * T - ((x + 2) * (y - 10))$$

$$Tx + xy = Tx + 2T - (xy - 10x + 2y - 20)$$

$$xy = 2T - xy + 10x - 2y + 20$$

$$2xy = 2T + 10x - 2y + 20$$

$$xy = T + 5x - y + 10$$

$$T = xy - 5x + y - 10$$

$$\boxed{T = y * (x + 1) - 5 * (x + 2)}$$

For; $x = 4$, $y = 20$

$$T = 20 * (4 + 1) - 5 * (4 + 2)$$

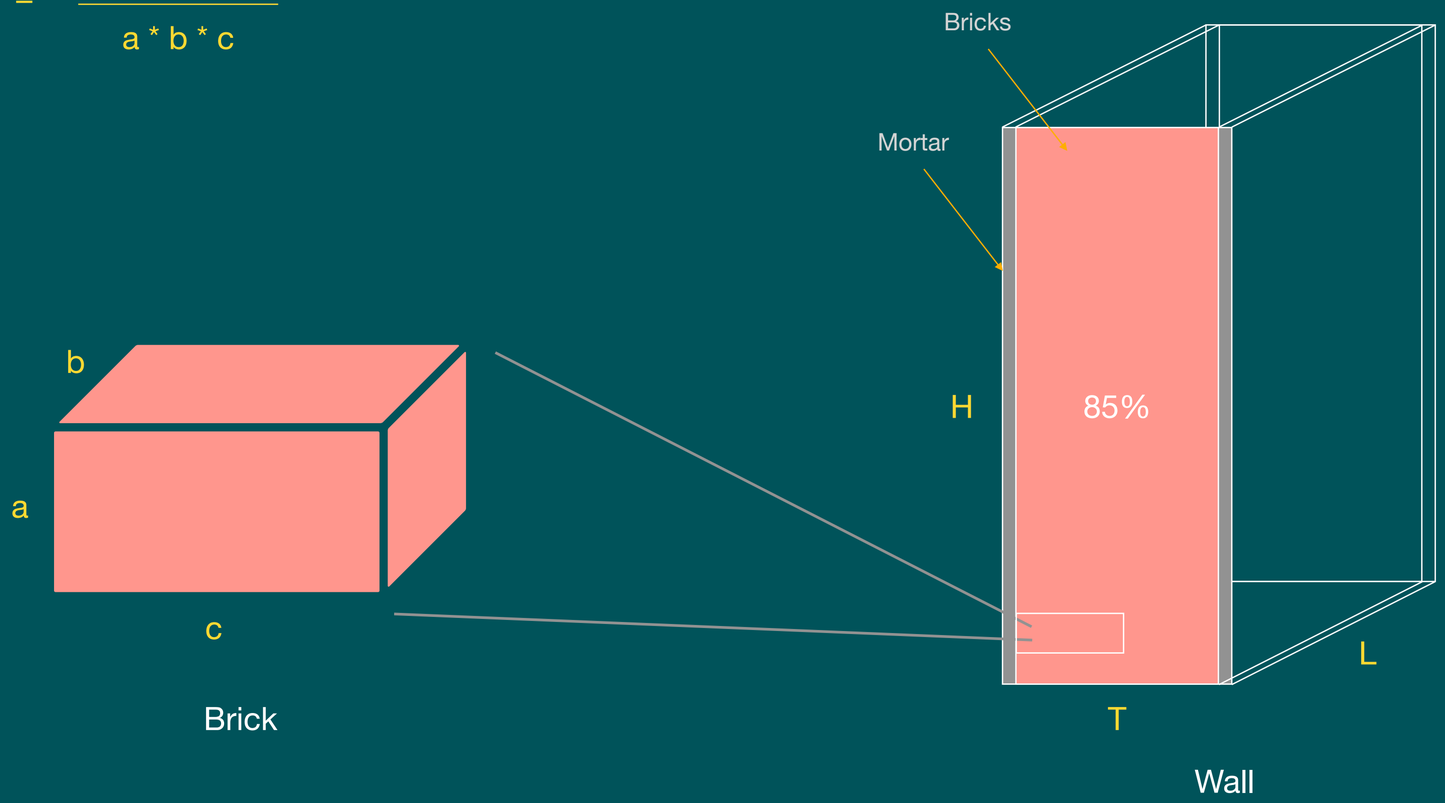
$$\boxed{T = 70 \text{ mins}}$$

$$D = x * \frac{(T + y)}{60}$$ Converting time $(T + y)$ to *km / h*

$$\boxed{\text{Distance} = 6}$$

3 - Bob the Builder

$$\text{Number of Bricks} = \frac{85\%\ (L * H * T)}{a * b * c}$$



85% (L * H * T)

4 - LCM of number

2	10	5
5	5	5
10	1	1

	a	b
Pick the greater of two (G):	(10)	5

See if the G is divided by a and b both: G % a = 0? and G % b = 0? ✓

LCM = G = 10

2	12	16
2	6	8
2	3	4
2	3	2
3	3	1
48	1	1

	a	b
Pick the greater of two (G):	12	(16)

See if the G is divided by a and b both: G % a = 0? and G % b = 0? ✗

Keep increasing G by 1 until the condition is true

LCM = 48

4 - LCM of number

	LCM	1	2	3	4	5	6	7	8	9	10	n
a	16	16	32	48	64 ...							
b	12	4	8	0								

	GCD	1	2	3	4	5	6	7	8	9	10	n
a	12	12	6	4	3							
b	16	4	4	0								

GCD way:

LCM = (a * b) / GCD

LCM = (12 * 16) / GCD

LCM = (12 * 16) / 4

LCM = 48

```
function gcd(a,b) {
    var i = 1;
    var min = Math.min(a, b);
    var max = Math.max(a, b);
    var div = min;

    while(true) {
        if(max % div === 0) {
            return div;
        }
        i++;
        div = min / i;
    }
}
```

```
function gcd(a,b) {
   if(b === 0) return a; else return gcd(b, a % b);
}
```