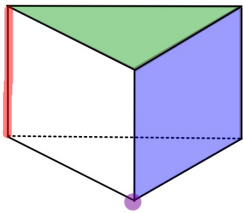## Prism:

- A polyhedron with exactly two congruent, parallel faces, called BASES.
- Other faces are called LATERAL FACES.
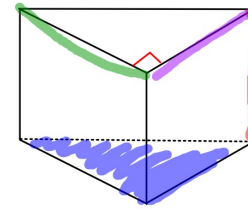
Base

Lateral Face

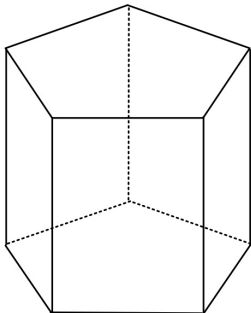Lateral Edge

Vertex

Triangular Prism

Height of the Prism

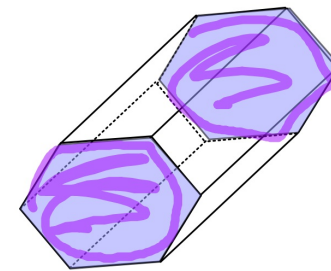Base of the Prism

Height of the Base

Base of the Base

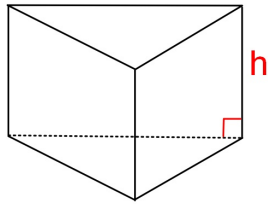You name a prism by the shape of its base.

Pentagonal Prism

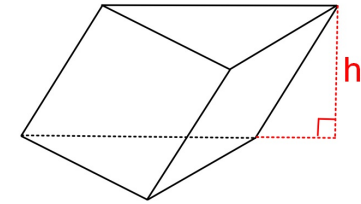Identify the two bases of this prism and name it.

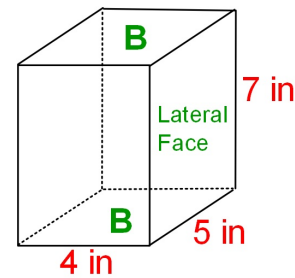Hexagonal Prism

How many lateral faces are there?

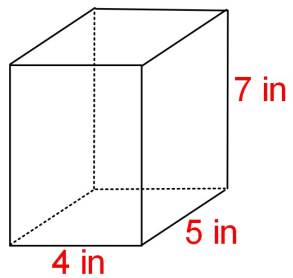**Right Prism:** Lateral Faces are Rectangles
Lateral edge is an altitude. height

h

Oblique Prism:
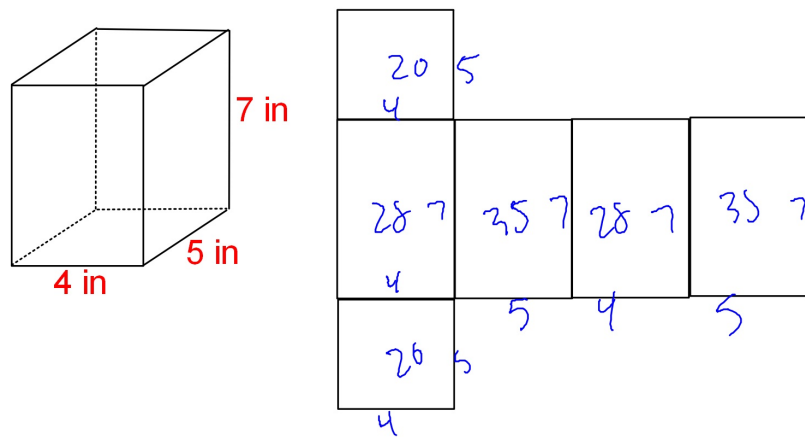
h

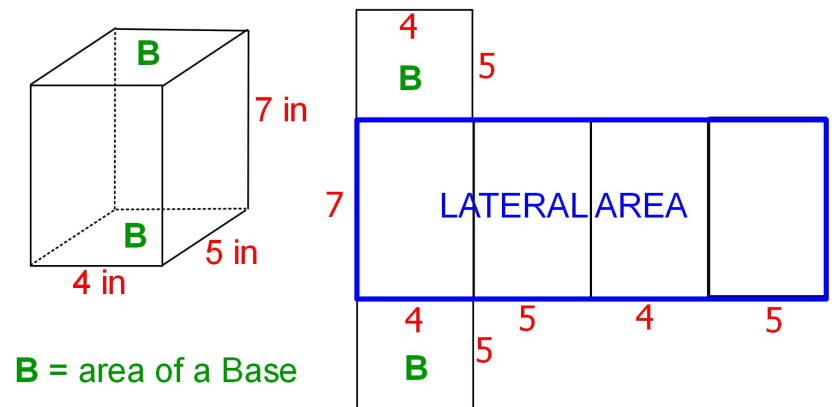Find the total surface area of this rectangular prism.

7 in

5 in

4 in

B

Lateral
Face

B

7 in

5 in

4 in

Surface Area: SA

2 Bases + 4 Lateral Faces

SA: 2B + Lateral Area

Using a net to find SA of a Prism:

20 5
4

28 7   35 7   28 7   35 7
4   5   4   5
20 5
4

7 in
5 in
4 in

Using a net to find SA of a Prism:

4
B   5
B

7   LATERAL AREA

4   5   4   5
B   5

7 in
5 in
4 in

B   (green B labels on cube)

B = area of a Base

Height of the Prism   7   LATERAL AREA

4   5   4   5

4+5+4+5 = Perimeter of the Base
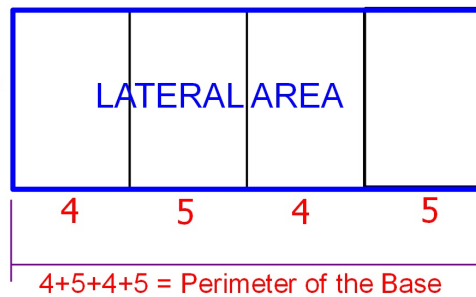
LATERAL AREA = (Perimeter of the Base)(Height of the Prism)

Lateral Area: Sum of areas of lateral faces.

10 in
8 in   6 in
5 in
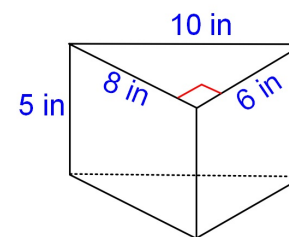
LA =

LA = *ph*

LA = (perimeter of the Base)(height)

Surface Area = Lateral Area + Area of Bases

10 in

8 in   6 in   □
5 in
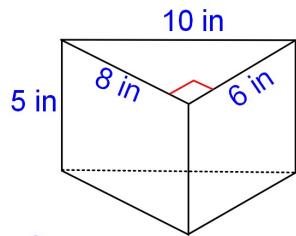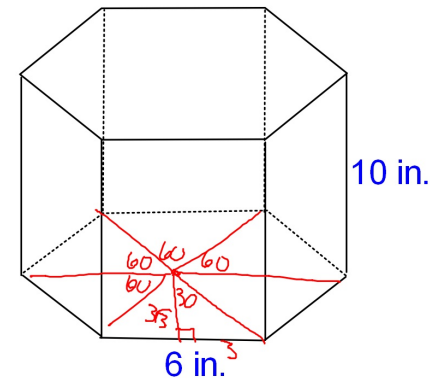
$SA = LA + 2B = 120 + 2(24)$
$= 168\ in^2$

$B = $ area of a base

$B = \frac{1}{2}bh$
$= \frac{1}{2} \cdot 8 \cdot 6 = 24$

8   10

$LA = 5\ [\ 40\ |\ 30\ |\ 5\ |\ 50\ ]$
6

$LA = ph = (8+6+10)(5) = 120$

Find the SA of this regular hexagonal prism to the nearest tenth.

10 in.

60 60 60
60 30
35   □
6 in.

$SA = LA + 2B$

$p \cdot h$ $\frac{1}{2}ap$
$(6\cdot6)(10)$ $\frac{1}{2}(3\sqrt3)(36)$
(360) $+ (93.5)$

$453.3\ in^2$

Find the surface area of this trapezoidal prism.

8in
6in
4in   15in
12in

$2B$
$2\left(\frac{1}{2}(b+b)h\right)$
$2\left(\frac{1}{2}(12+8)(4)\right)$
$2B = 80\ in^2$

$LA = ph = (33)(5) = 480$

$12+6+5+6$
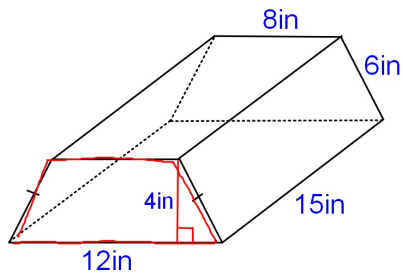
$SA = LA + 2B$
$480 + 80 = 560\ in^2$

Find the surface area of this Pentagonal Prism.

8   8
8   8
8
20
x 36
4

$LA = ph$
$= (5.8)(20) = 800$

$2B = 2\left(\frac{1}{2}aP\right)$
$2\left(\frac{1}{2}(5.5)40\right)$
$= 220$

$Tan 36° = \frac{4}{x}$
$x = 5.5$

$SA\quad 800 + 220 = 1020$