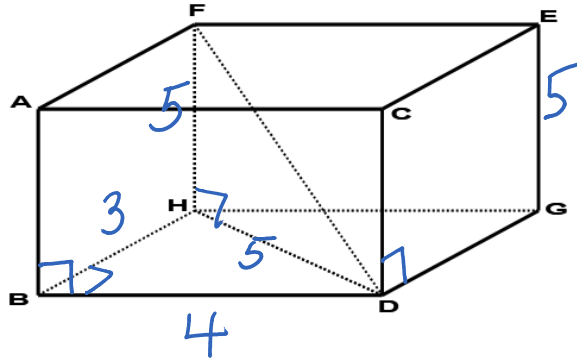# 9.8 notes

Friday, February 13, 2015   10:02 AM

Section 9.8 – Pythagorean Theorem and Space Figures

1. Given: Rectangular Solid
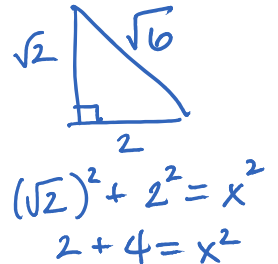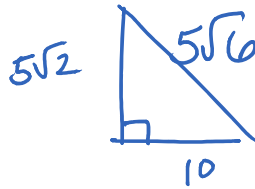   EG = 5
   BD = 4
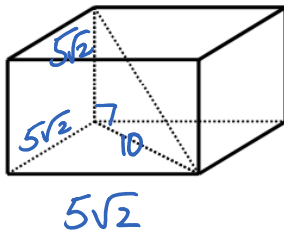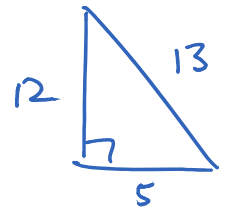   BH = 3

Find FD

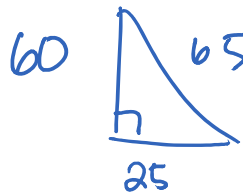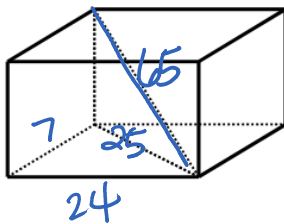$$FD = 5\sqrt{2}$$

2. Given a cube with an edge measuring $5\sqrt{2}$, what is the measure of a diagonal of the cube?

$$(\sqrt{2})^2 + 2^2 = x^2$$
$$2 + 4 = x^2$$

3. If a rectangular prism has a rectangular base with sides of 7 and 24, and a diagonal of the prism is 65, what is the height of the prism?

4. If a rectangular prism has base lengths of $5\sqrt{2}$ and $2\sqrt{3}$, and the height of the prism is 10, what is the length of the diagonal of the prism?
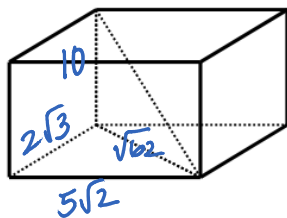
$$(2\sqrt{3})^2 + (5\sqrt{2})^2 = x^2$$
$$4 \cdot 3 + 25 \cdot 2 = x^2$$
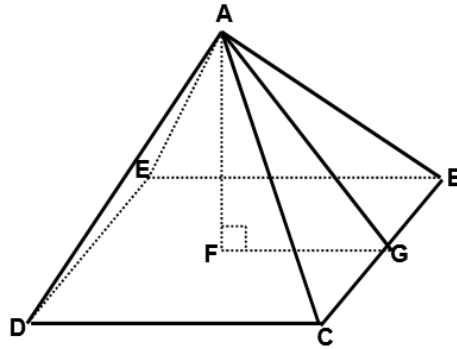$$62 = x^2$$

$$(\sqrt{62})^2 + 10^2 = y^2$$
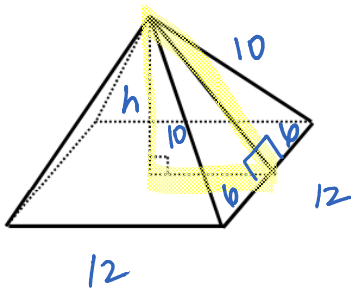$$62 + 100 = y^2$$
$$y = \sqrt{162}$$
$$= 9\sqrt{2}$$
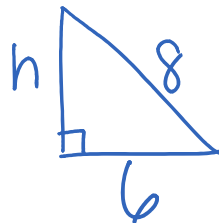
Regular Square Pyramid:

Base: Square DEBC

Vertex: A

Altitude: $\overline{AF}$

Slant Height: $\overline{AG}$

Lateral Edge: $\overline{AB}, \overline{AC}, \overline{AD}, \overline{AE}$

5. Given a square pyramid with base edges of 12 and lateral edges of 10, what is the slant height of the pyramid? What is the length of the altitude of the pyramid?
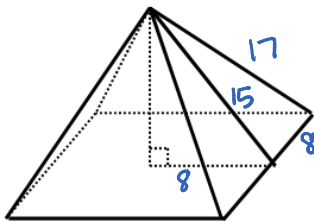
Slant height = 8

$3^2 + x^2 = 4^2$
$9 + x^2 = 16$
$x = \sqrt{7}$

$h = 2\sqrt{7}$

6. Given a square pyramid with slant height of 15 and lateral edge of 17, what is the length of the edge of the base? What is the length of the altitude?

Base edge = 16

Diagonal of the base?

$16\sqrt{2}$

$15^2 = 8^2 + h^2$

$225 = 64 + h^2$

$h^2 = 161$

$h = \sqrt{161}$