

New Concepts

Problem Set #31

““Doing mathematics should always mean finding patterns and crafting beautiful and meaningful explanations.”

- Paul Lockhart

New Postulates and Theorems

Exercises:

p.193 #21-25, 30-32

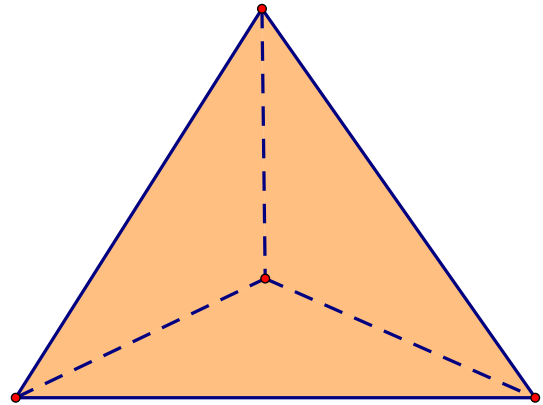
Problems:

31-1 Slicing a pyramid

A three-dimensional pyramid with six congruent edges is drawn.

Draw a diagram to show how a plane can intersect the figure to form a(n):

- a) equilateral triangle
- b) scalene triangle
- c) rectangle
- d) isosceles trapezoid



31-2 Medians of a trapezoid.

Draw a trapezoid ABCD with bases \overline{AB} and \overline{CD} . Let $AB = x$ and $CD = y$.

Draw in the median of the trapezoid with M as the midpoint of \overline{AD} and N as the midpoint of \overline{BC} .

Let q be the length of the median of trapezoid ABNM and p be the length of the median of trapezoid NMCD.

In terms of x and y , find both $(p + q)$ and $(p - q)$.