

Marvelous Meaningful Monthly Math

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Central Area Tech Prep, Mitchell Technical Institute, and Bridges

Architecture and Construction December

Career – Urban Planner

Math Activity

As an urban planner with a consulting firm, you must advise your client on whether or not she should consider developing a site. She only wants to proceed if the site has more than 30 percent residential buildable area. In other words, your client wants to know if she can build houses on more than 30 percent of the land.

You consult the city policy manual to determine what parts of the site can or cannot be built on and come up with these figures:

Total Site Area: 1,236 acres

Already Developed or Inaccessible: 45 acres
0 percent of that is buildable

Highly Sensitive Area (regarding plant, animal life): 547 acres
1 percent of that is buildable

Moderately Sensitive Area: 140 acres
25 percent of that is buildable

Some or No Environmental Sensitivity (fully developable): 504 acres
60 percent of that is buildable

Given these numbers, will you be proceeding with the project?

Name _____ School _____ Teacher _____

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Solution

In order to find out the total percentage that is buildable, you have to convert the buildable percentages of each individual area into acres, then add up the total acres that your client can build on. Divide that amount by the total area to get the figure you're looking for.

Example: If 3 percent of 200 acres is buildable, that's $0.03 \times 200 \text{ acres} = 6 \text{ acres}$ out of 200 that your client can build on.

Therefore:

45 acres x 0.00 = 0 acres buildable in already developed or inaccessible area.

547 acres x 0.01 = 5.47 acres buildable in highly sensitive area -- but be careful!

140 acres x 0.25 = 35 acres buildable in moderately sensitive area.

504 acres x 0.60 = 302.4 acres buildable in area with some or no sensitivity.

0 + 5.47 + 35 + 302.4 = 342.87 total buildable acres.

342.87 / 1236 = 27.7 percent of total site is buildable.

You must now inform your client of the unfortunate results. She will not want to develop the area. The good news is, you will get paid anyway!