

## MathWalk

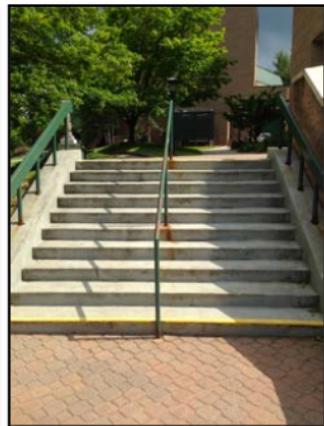
### #4) A New Slant on Stairs

Stand facing The Hayes School of Music building. There are 3 flights of steps leading up to the entrance. For this problem, feel free to make use of these measurements:

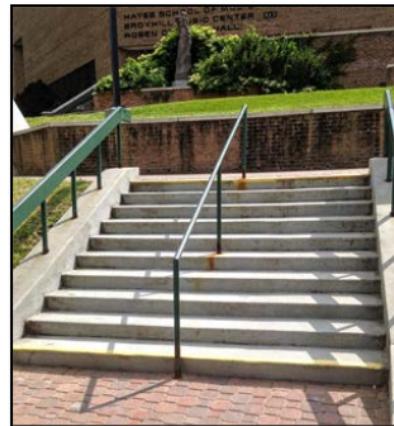
	<u>Tread depth</u>	<u>Height of step</u>	<u>#of Steps</u>
<i>Bottom &amp; Middle flights:</i>	12.5 in.	5.0 in.	10
<i>Top flight:</i>	11.5 in.	6.0 in.	11



Highest staircase



Middle flight



Bottom staircase

Fig 6. Flights of steps leading up to the entrance of Hayes School of Music

#### Tasks:

#### Grades K-1:

- How many steps are in the 1<sup>st</sup> staircase? Count them.
- How many steps are in the 2<sup>nd</sup> staircase? Count them.
- How many steps do you think will be in the 3<sup>rd</sup> staircase? Count them.

#### Grades 6 – 8:

- What is the slope for the bottom staircase?
- For the highest staircase?
- Is the slope the same for all 3 staircases?
- If you are standing at the top of the 2<sup>nd</sup> set of stairs, how much higher are you than someone standing at the bottom of the first flight of stairs?

#### Grades 9-12:

- What angle does the slope of the bottom staircase make with the ground (in degrees)? The top one?

## #5) Wooden You Know, Another Post Problem!

When you face The Hayes School of Music from the sidewalk and look to your right, you'll see the flowerbed shown below. It has 10 posts and 10 chain sections.



Fig 7: flowerbed close to the Hayes School of Music

These posts are made up of a piece of lumber known as a 4x4 which is meant to describe the square end as being 4" by 4". The actual measurement is 3.5" x 3.5" because the piece you buy has been kiln dried and sanded smooth. On average, the height of these posts (above the ground) are approximately 40".

### Tasks:

#### Grades 6 – 12:

- a) What is the surface area of the rectangular portion of one post (minus the pyramid shaped top)?

#### Grades K – 5:

- b) What shape is the top of each post?