2003 Washington State Math Championship

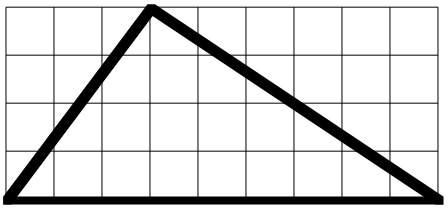
Unless a particular problem directs otherwise, give an exact answer or one rounded to the nearest thousandth.

Geometry - Grade 5

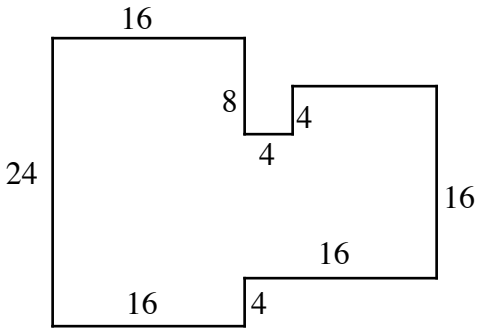
1. A bucket can hold $\frac{1}{2}$ a cubic foot of sand. How many buckets will it take to fill a square sandbox 6 feet on a side that is $1\frac{1}{2}$ feet high?

2. A cube that is 5 cm by 5 cm by 5 cm is painted on all sides. It is then cut into smaller cubes that have 1 cm edge lengths. How many of the 1 cm cubes have 2 of their sides painted?

3. What is the area of this triangle? Each small square is one square unit.

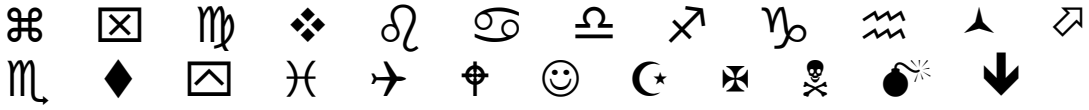


4. Evan wants to cover his patio with 1 foot square blocks. A plan for the patio is given to the right. All angles are right angles and the side lengths are given in feet. How many square blocks are needed to cover the patio?

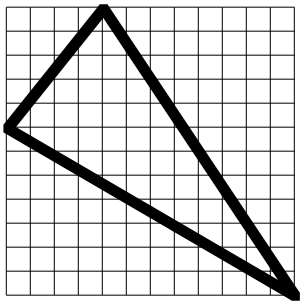


5. How many different perimeters can rectangles with whole number side lengths have if their areas must be 360?

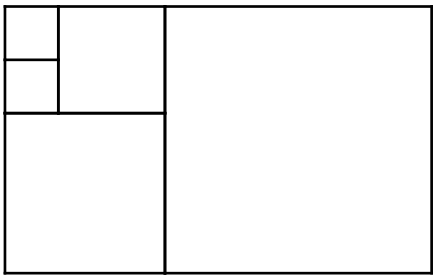
6. How many of the following symbols have reflection symmetry?



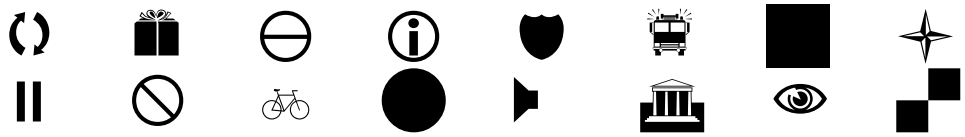
7. Find the area of this triangle. Each small square is one square unit.



8. Each interior is enclosed by a square. The area of the smallest square is one. What is the ratio of the perimeter of the largest square in the figure to the perimeter of the next square to be drawn? Express your answer as a reduced fraction.



9. How many of the following symbols have rotation symmetry?



10. A freeway overpass in Canada has signs which give the maximum height in meters of vehicles which can pass underneath in each particular lane. The freeway itself is level, and the slope of the overpass is $\frac{1}{20}$. Each lane of the freeway has the same width. How many meters wide is each lane?