

Math Mastery

Geometry and Measurement

Sixth Grade

Standard 5.5.2: I can solve problems involving perimeters and areas of rectangles, triangles, parallelograms, and trapezoids, using appropriate units.

Standard 6.5.4: I understand the concept of the constant π as the ratio of the circumference to the diameter of a circle. Develop and use the formulas for the circumference and area of a circle.

Standard 6.5.5: I know common estimates of π (3.14, 22/7) and use these values to estimate and calculate the circumference and the area of circles. Compare with actual measurements.

Name _____

Period _____

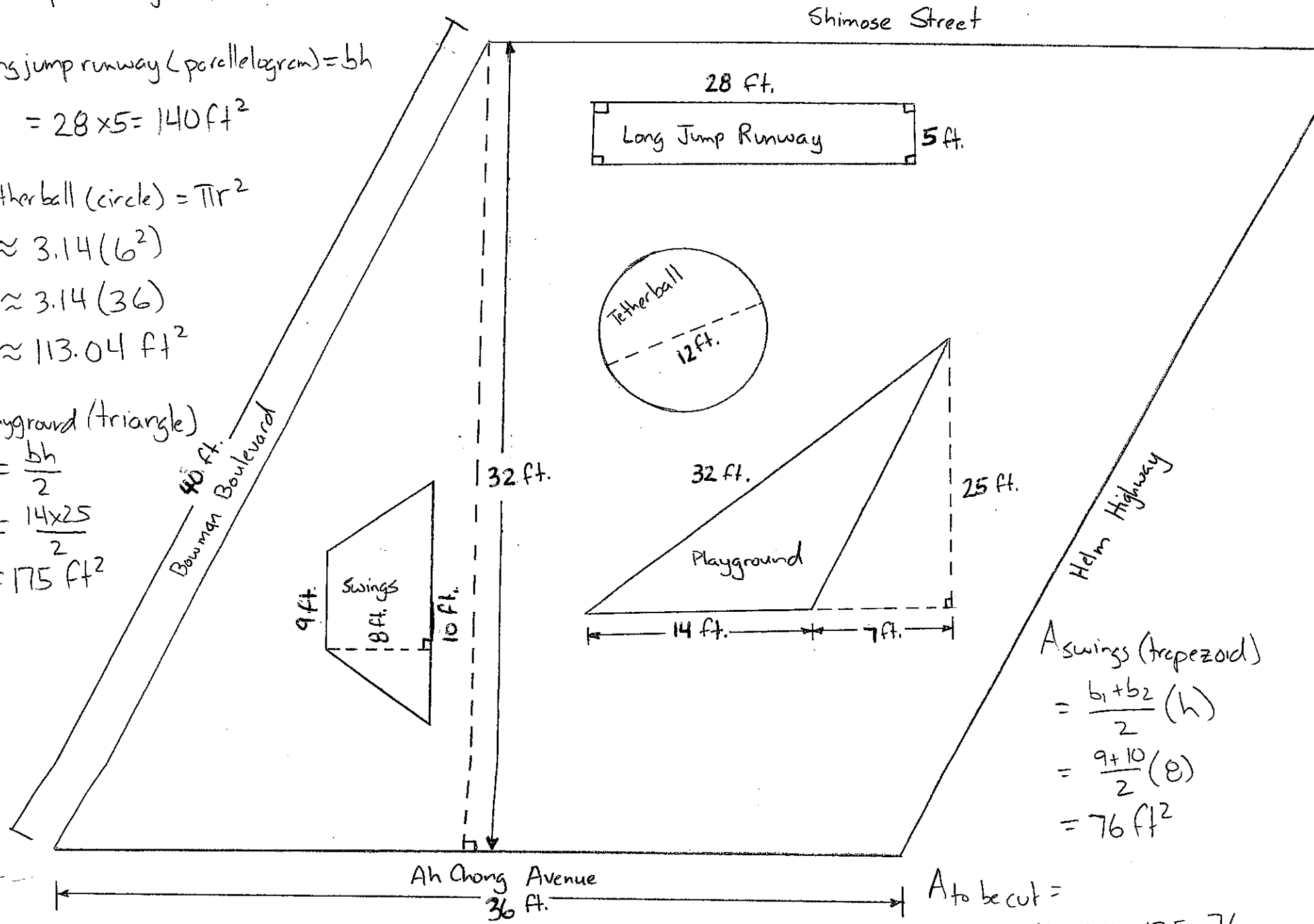
Uncle Kilo has to cut the grass at the county park. The park is in the shape of a **parallelogram** and is bounded by Bowman Boulevard, Helm Highway, Shimose Street, and Ah Chong Avenue. Within the park are a long jump runway, which is a **rectangle**, a tetherball court, which is a **circle**, a children's playground, which is an obtuse **triangle**, and a swing area, which is an isosceles **trapezoid**. These areas do not have grass that needs to be cut. Find the area that Uncle Kilo has to cut. **Show your work!**

$A_{\text{park (parallelogram)}} = bh = 36 \times 32 = 1,152 \text{ ft}^2$

$A_{\text{long jump runway (parallelogram)}} = bh$
 $= 28 \times 5 = 140 \text{ ft}^2$

$A_{\text{tetherball (circle)}} = \pi r^2$
 $\approx 3.14 (6^2)$
 $\approx 3.14 (36)$
 $\approx 113.04 \text{ ft}^2$

$A_{\text{playground (triangle)}} = \frac{bh}{2}$
 $= \frac{14 \times 25}{2}$
 $= 175 \text{ ft}^2$



$A_{\text{swings (trapezoid)}} = \frac{b_1 + b_2}{2} (h)$
 $= \frac{9 + 10}{2} (8)$
 $= 76 \text{ ft}^2$

$A_{\text{to be cut}} =$
 $1,152 - 140 - 113.04 - 175 - 76$
 $= 647.96 \text{ ft}^2$