Area, perimeter, volume

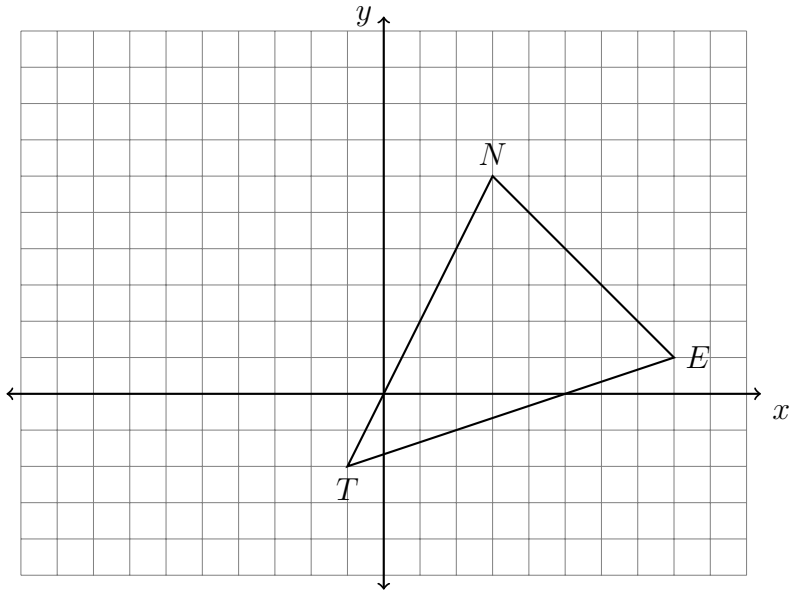
1. Rectangle, square area and perimeter
2. Circle area and circumference
3. Sector areas, arc length
4. Solve for parameter versus calculate result
5. Compound shapes (including margins)
6. Distance on the coordinate plane
   (a) Plotting, labeling points, etc.
   (b) Horizontal & vertical distances
   (c) Pythagorean formula
   (d) Applications: Rhombus, isosceles $\triangle$,
   (e) Radicals, π and rounding
7. Triangle area, perimeter (formula sheet)
8. Volume: prism, cylinder, cone
9. Surface area
10. Scaling shapes (eg. rectangle, triangles including midline)

Basic shapes

1. Regents problems, January 2017, #26, 34, 29?

Distance on the coordinate plane, proofs

2. Triangle ABC has vertices with coordinates A(,), B(,), and C(,). Prove that $\triangle ABC$ is an isoscelese triangle but not an equilateral triangle. (The use of the set of axes below is optional.)
   Note: state both conclusions for full credit.
3. Triangle $\triangle DAN$ is graphed on the set of axes below. The vertices of $\triangle DAN$ have the coordinates $T(-1,-2)$, $E(8,1)$, and $N(3,6)$.



(a) Draw an altitude through point N perpendicular to $\overline{TE}$.

(b) What is the length of the altitude drawn through N?

(c) What is the length of the base, TE?

(d) Find the area of $\triangle DAN$.

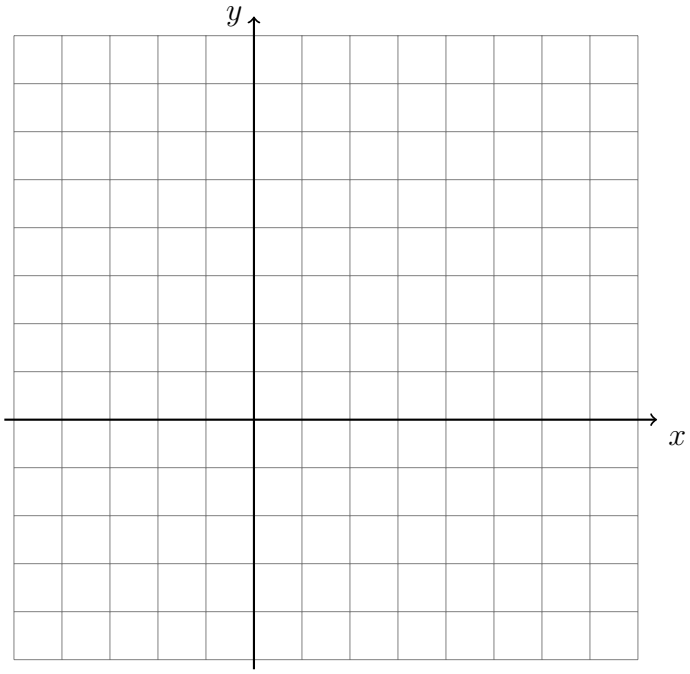
4. Given the quadrilateral $RSTU$ with $R(1, 3)$, $S(4, 7)$, $T(4, 2)$, and $U(1, -2)$.

(a) Plot and label $RSTU$ on the grid.

(b) Using the distance formula or otherwise, calculate RS, ST, TU, and RU.

(c) Definition: If a quadrilateral has four congruent sides, then it is a rhombus.

Prove that $RSTU$ is a rhombus.



5. Given the quadrilateral $RECT$ with $R(-4, 1)$, $E(8, 1)$, $C(8, 6)$, and $T(-4, 6)$.
   (a) Plot and label $RECT$ on the grid.
   (b) Using the distance formula, calculate the length of the two diagonals RC and ET.
   (c) Theorem: If the diagonals of a quadrilateral are congruent, then it is a rectangle.

   Prove that $RECT$ is a rectangle.