Unit 6: Distance & slope Name:
15 January 2019

Regents problems August 2019

1. On the set of axes below, $\overline{AB}$ is dilated with a scale factor of $\frac{5}{2}$ centered at point P.

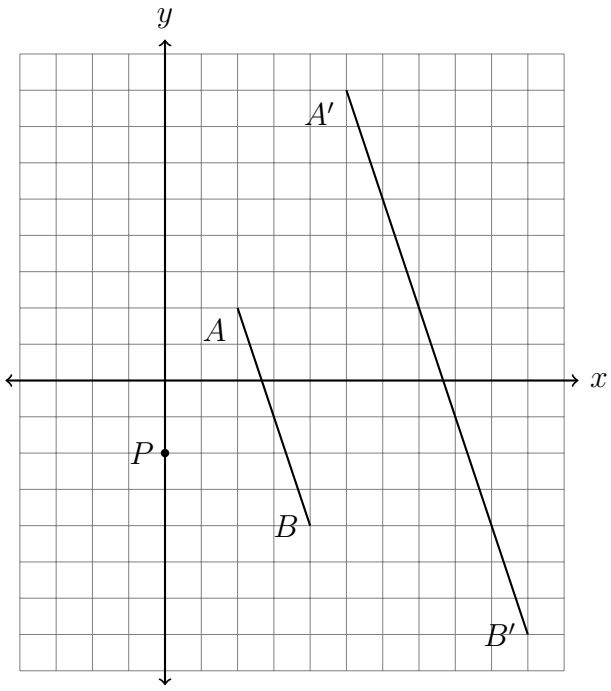
   Which of the following is/are true:

   (a) T F $\overline{AP} \cong \overline{AA'}$

   (b) T F $\overline{AB} \parallel \overline{A'B'}$

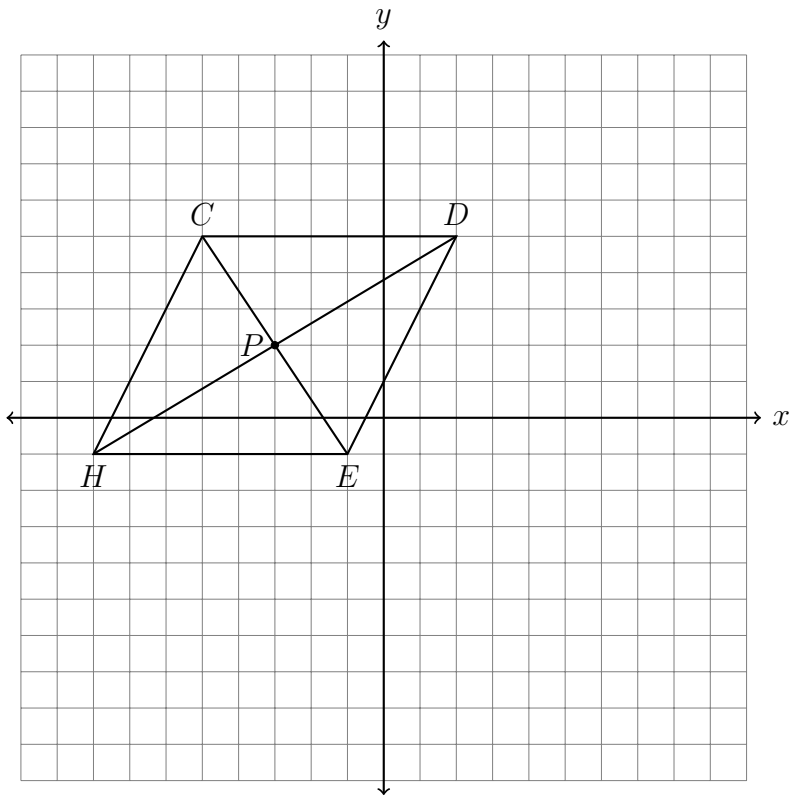
   (c) T F $AB = A'B'$

   (d) T F $\frac{5}{2}(A'B') = AB$



2. The coordinates of the vertices of parallelogram $CDEH$ are $C(-5, 5)$, $D(2, 5)$, $E(-1, -1)$, and $H(-8, -1)$. What are the coordinates of P, the point of intersection of diagonals $\overline{CE}$ and $\overline{DH}$?

   (scaffold to graph on exam stationary)



3. Isosceles angle situation (#6)

4. Vocabulary situations: show circle with parts

5. Given the circle, points, and line segments depicted below, circle whether each statement is true or false. (Circle with chords, secant, radius, diameter, arc, center, circumference, semicircle, tangent, perpendicular situations)

6. Triangle vocabulary: vertex, side, hypotenuse, acute, obtuse, perpendicular, median, altitude, perpendicular bisector, Equation of a circle competencies

7. Situations with right triangle hypotenuses as circle radii.

8. Expand the expression $(x+3)^2$ to the form ax^2+bx+c.

9. Factor the expression x^2+6x+9 as a perfect square.

10. Simplify the radical $\sqrt{50}$.

11. What are the coordinates of the center and the length of the radius of the circle whose equation is $x^2+y^2=8x-6y+39$?

12. Angle measures

13. Use the tangent function to determine the measure of the central angle θ.

14. A regular pentagon is inscribed in a circle as shown below. What is the measure of the central angle between two consecutive vertices, $m\angle AOB$?

15. Formulas for the area and circumference of circles:
$A = \pi r^2$
$C = \pi D = 2\pi r$

16. Find the area of a circle with radius 4 cm.

17. Find the radius of a circle having an area of 25π.