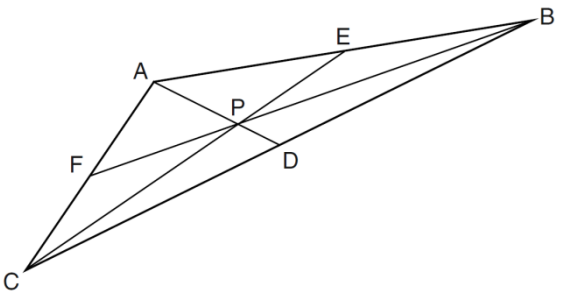
Geometry R
CC Regents Review #2

Name_____
Date_____

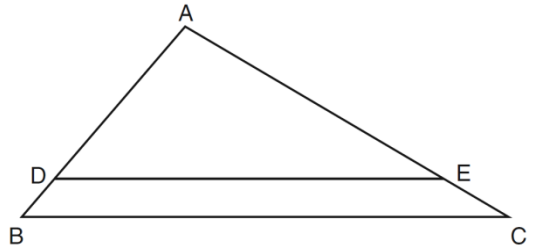
1. In the diagram below of $\triangle ABC$, $\overline{AE} \cong \overline{BE}$, $\overline{AF} \cong \overline{CF}$, and $\overline{CD} \cong \overline{BD}$.



Point *P* must be the
1) centroid
2) circumcenter
3) incenter
4) orthocenter

2. What is the equation of the line that passes through the point $(-9, 6)$ and is perpendicular to the line $y = 3x - 5$?
1) $y = 3x + 21$
2) $y = -\frac{1}{3}x - 3$
3) $y = 3x + 33$
4) $y = -\frac{1}{3}x + 3$

3. In the diagram of $\triangle ABC$ shown below, $\overline{DE} \parallel \overline{BC}$.



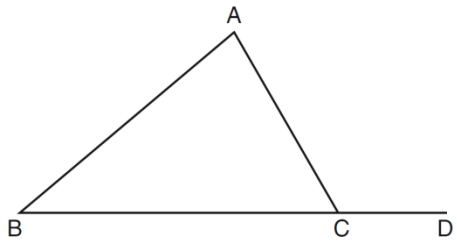
If $AB = 10$, $AD = 8$, and $AE = 12$, what is the length of $\overline{EC}$?
1) 6
2) 2
3) 3
4) 15

4. What is the length of $\overline{AB}$ with endpoints $A(-1, 0)$ and $B(4, -3)$?
1) $\sqrt{6}$
2) $\sqrt{18}$
3) $\sqrt{34}$
4) $\sqrt{50}$

5. The sum of the interior angles of a polygon of *n* sides is
1) 360
2) $\frac{360}{n}$
3) $(n-2) \cdot 180$
4) $\frac{(n-2) \cdot 180}{n}$

6. What is the slope of a line perpendicular to the line whose equation is $20x - 2y = 6$?
1) -10
2) $-\frac{1}{10}$
3) 10
4) $\frac{1}{10}$

7. In the diagram below of $\triangle ABC$, $\overline{BC}$ is extended to *D*.



(Not drawn to scale)

If $m\angle A = x^2 - 6x$, $m\angle B = 2x - 3$, and $m\angle ACD = 9x + 27$, what is the value of *x*?
1) 10
2) 2
3) 3
4) 15

8.

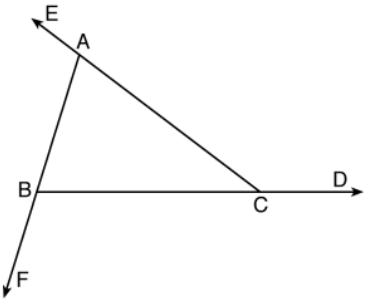
A man who is 5 feet 9 inches tall casts a shadow of 8 feet 6 inches. Assuming that the man is standing perpendicular to the ground, what is the angle of elevation from the end of the shadow to the top of the man's head, to the *nearest tenth of a degree*?

9.

A contractor needs to purchase 500 bricks. The dimensions of each brick are 5.1 cm by 10.2 cm by 20.3 cm, and the density of each brick is 1920 kg/m^3.

The maximum capacity of the contractor's trailer is 900 kg. Can the trailer hold the weight of 500 bricks? Justify your answer.

10. Prove the sum of the exterior angles of a triangle is 360^o.



11. Two stacks of 23 quarters each are shown. One stack forms a cylinder, but the other stack does not form a cylinder. Use Cavalieri's Principle to explain why the volumes of these two stacks of quarters are equal.