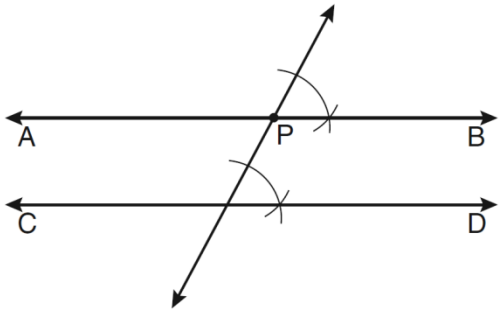
Geometry R
CC Regents Review - #1

Name_____
Date_____

1. The diameter of a sphere is 15 inches. What is the volume of the sphere, to the *nearest tenth of a cubic inch*?
1) 706.9
2) 1767.1
3) 2827.4
4) 14,137.2

2. The diagram below shows the construction of $\overleftrightarrow{AB}$ through point *P* parallel to $\overleftrightarrow{CD}$.

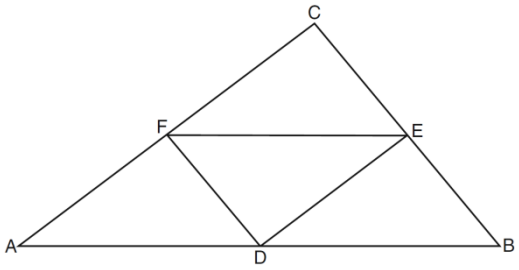


Which theorem justifies this method of construction?
1) If two lines in a plane are perpendicular to a transversal at different points, then the lines are parallel.
2) If two lines in a plane are cut by a transversal to form congruent corresponding angles, then the lines are parallel.
3) If two lines in a plane are cut by a transversal to form congruent alternate interior angles, then the lines are parallel.
4) If two lines in a plane are cut by a transversal to form congruent alternate exterior angles, then the lines are parallel.

3. Parallelogram *ABCD* has coordinates $A(1,5)$, $B(6,3)$, $C(3,-1)$, and $D(-2,1)$. What are the coordinates of *E*, the intersection of diagonals $\overline{AC}$ and $\overline{BD}$?
1) $(2,2)$
2) $(4.5,1)$
3) $(3.5,2)$
4) $(-1,3)$

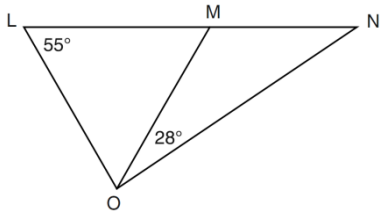
4. What is the equation of a circle whose center is 4 units above the origin in the coordinate plane and whose radius is 6?
1) $x^2+(y-6)^2=16$
2) $(x-6)^2+y^2=16$
3) $x^2+(y-4)^2=36$
4) $(x-4)^2+y^2=36$

5. In the diagram of $\triangle ABC$ shown below, *D* is the midpoint of $\overline{AB}$, *E* is the midpoint of $\overline{BC}$, and *F* is the midpoint of $\overline{AC}$.



If $AB=20$, $BC=12$, and $AC=16$, what is the perimeter of trapezoid *ABEF*?
1) 24
2) 36
3) 40
4) 44

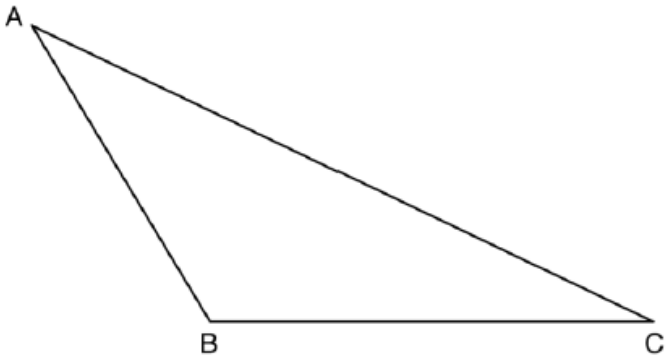
6. In the diagram below, $\triangle LMO$ is isosceles with $LO=MO$.



If $m\angle L=55$ and $m\angle NOM=28$, what is $m\angle N$?
1) 27
2) 28
3) 42
4) 70

7. If $\overleftrightarrow{AB}$ is contained in plane $\mathcal{P}$, and $\overleftrightarrow{AB}$ is perpendicular to plane $\mathcal{R}$, which statement is true?
1) $\overleftrightarrow{AB}$ is parallel to plane $\mathcal{R}$.
2) Plane $\mathcal{P}$ is parallel to plane $\mathcal{R}$.
3) $\overleftrightarrow{AB}$ is perpendicular to plane $\mathcal{P}$.
4) Plane $\mathcal{P}$ is perpendicular to plane $\mathcal{R}$.

8. Use a compass and straight edge to construct an altitude of triangle ABC.



9.

In right triangle ABC with the right angle at C, $\sin A = 2x + 0.1$ and $\cos B = 4x - 0.7$. Determine and state the value of x. Explain your answer.

10.

In isosceles $\triangle MNP$, line segment NO bisects vertex $\angle MNP$, as shown below. If $MP = 16$, find the length of $\overline{MO}$ and explain your answer.