Name: _____

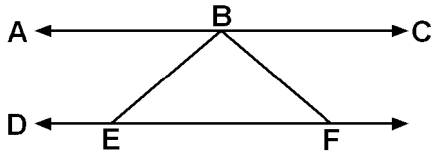
CC Geometry

Graded Review Assignment

You must show all work on every question to receive full credit (including multiple choice)

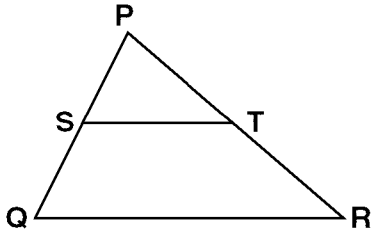
1) In $\triangle ABC$, $\overline{BC}$ is extended through C to D. If $m\angle A = 65°$ and $m\angle B = 70°$, what is the measure of $\angle DCA$?

2) In the accompanying diagram, $\overleftrightarrow{ABC} \parallel \overleftrightarrow{DEF}$ and $\overline{BE} \cong \overline{BF}$.



If $m\angle CBF = 40°$, find $m\angle BED$.

3)

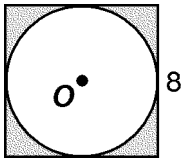


If $\overline{ST} \parallel \overline{QR}$, $PQ = 10$, $SQ = 4$, and $PR = 5$, find $\overline{PT}$. [*Show all work.*]

4) Which statement is *always* true?

1) The diagonals of a parallelogram are congruent.
2) The diagonals of a parallelogram bisect the angles of the parallelogram.
3) The diagonals of a parallelogram are perpendicular.
4) The diagonals of a parallelogram bisect each other.

5) What is the area of the shaded region of the figure below when the side of the square is 8?



1) $64 - 16\pi$
2) $32 - 16\pi$
3) $32 - 8\pi$
4) $64 - 8\pi$

6) In right triangle ABC, if $AB = 13$, $BC = 5$, and $AC = 12$, then $\cos A$ is equal to

1) $\frac{5}{12}$
2) $\frac{12}{13}$
3) $\frac{13}{12}$
4) $\frac{5}{13}$

7) What value of x satisfies the equation $\sin (3x + 5)° = \cos (4x + 1)°$?

1) 24
2) 30
3) 12
4) 4

8) The diagonals of a rhombus have lengths of 8 centimeters and 6 centimeters. The perimeter of the rhombus is

1) 20 cm
2) 14 cm
3) 25 cm
4) 5 cm

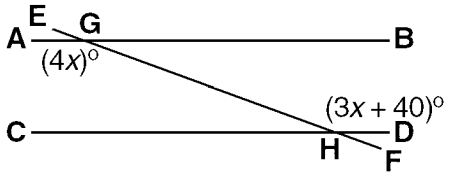
9) Which one of the following number of degrees would map a regular nonagon onto itself?

1) 40°
2) 200°
3) 280°
4) All of the rotations listed would carry the nonagon onto itself.

10) The ratio of two supplementary angles is 3:6. What is the measure of the *smaller* angle?

1) 20°
2) 60°
3) 10°
4) 30°

11) In the diagram below, $\overline{AB}$ is parallel to $\overline{CD}$. Transversal $\overline{HF}$ intersects $\overline{AB}$ and $\overline{CD}$ at G and H, respectively.



If $m\angle AGH = 4x°$ and $m\angle GHD = (3x + 40)°$, what is the value of x?

1) 160
2) 20
3) 80
4) 40

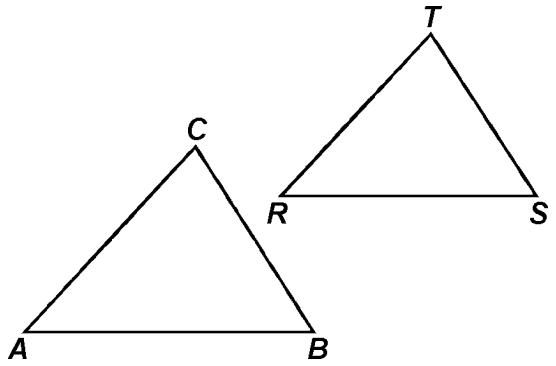
12) If the diagonals of a parallelogram are perpendicular and *not* congruent, then the parallelogram is

1) an isosceles trapezoid
2) a rhombus
3) a rectangle
4) a square

13) If the angles of a triangle are represented by $x°$, $(3x + 20)°$, and $6x°$, the triangle *must* be

1) isosceles
2) right
3) acute
4) obtuse

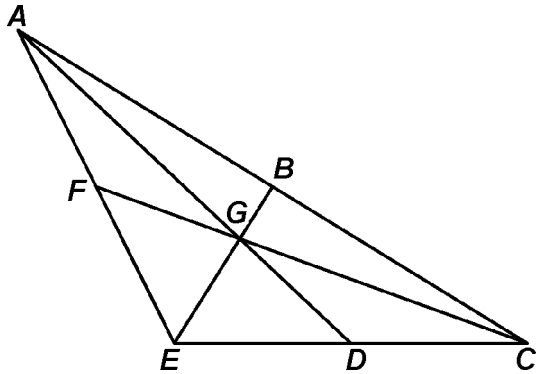
14) In the diagram below, $\triangle ABC \sim \triangle RST$.



Which one of the following statements is *not* true?

1) $\frac{AB}{BC} = \frac{ST}{RS}$
2) $\frac{AB}{RS} = \frac{BC}{ST}$
3) $\angle A \cong \angle R$
4) $\frac{AB + BC + AC}{RS + ST + RS} = \frac{AB}{RS}$

15) In the diagram below of $\triangle ACE$, medians $\overline{AD}$, $\overline{EB}$, and $\overline{CF}$ intersect at G. The length of $\overline{FG}$ is 12 cm.



What is the length, in centimeters, of $\overline{GC}$?

1) 4
2) 12
3) 24
4) 6

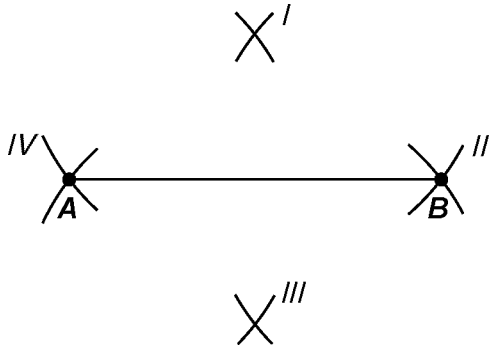
16) $\triangle CAT$ is the image of $\triangle DOG$ under a dilation of scale factor 6. Which one of the following statements is true?

1) $6(CA) = DO$
2) $6(m\angle O) = m\angle A$
3) $m\angle O = 6(m\angle A)$
4) $CA = 6(DO)$

17) A boy flying a kite lets out 200 feet of string which makes an angle of 50° with the ground. How high is the kite above the ground (to the nearest foot)?

1) 238 ft
2) 128 ft
3) 153 ft
4) 261 ft

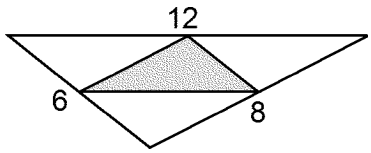
18) Line segment AB is shown in the diagram below.



Which two sets of construction marks, labeled *I*, *II*, *III*, and *IV*, are part of the construction of the perpendicular bisector of line segment AB?

1) *II* and *III*
2) *I* and *III*
3) *I* and *II*
4) *II* and *IV*

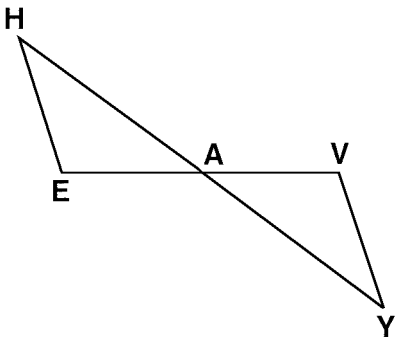
19) The art department at the *Triangle University* was charged with designing a new cloth flag for the school's Olympic Math team. They started with a white triangular shape with sides measuring 6 feet, 8 feet, and 12 feet. They then added an inner red triangle formed by connecting the midpoints of the sides of the first triangle. Finally they want to sew on a gold braid around the edges of the inner red triangle.



(**a**) Find the length of the gold braid needed to edge the inner triangle. [*Show all work and explain your reasoning.*]

(**b**) If the braid costs $4.10 per yard, find the cost of the braid needed to the nearest cent. [*Show all work.*]

20)



Given: $\overline{HY}$ and $\overline{EV}$ bisect each other

Prove: $\overline{HE} \cong \overline{VY}$