*Show work!! No calculator!!　　　　　　　　**NAME:**　　　　　　　　**PER:**

*20. Given that $\overline{AB}$ is tangent to circle O at point A, $\overline{OA}$ is a radius, OA = 6, and OB = 8, find AB.

　　A. $\sqrt{7}$　　　　B. $2\sqrt{7}$　　　　C. $4\sqrt{7}$　　　　D. 5　　　　　　E. 10

*21. Find the midpoint of the segment with endpoints at (a + b, c) and (2a, -3c).

　　A. $\left(\dfrac{3a+b}{2},-c\right)$　　　　B. $\left(\dfrac{3a+b}{2},2c\right)$　　　　C. $\left(\dfrac{3a}{2},-c\right)$　　　　D. (4c, b – a)　　　E. (a – b, –2c)

*22. Determine the coordinates of Q, an endpoint of $\overline{PQ}$, given that the other endpoint is P(–2, 4) and the midpoint is M(1, 5).

　　A. (4, 14)　　　　B. (0, 6)　　　　C. (4, 6)　　　　D. $\left(\dfrac{-1}{2},\dfrac{9}{2}\right)$　　　　E. (5, 6)

*23. The endpoints of a diameter of a circle are (3, 2) and (11, 8). Find the area of the circle.

　　A. 5 units^2　　　　B. 25 units^2　　　　C. 25π units^2　　　　D. 10π units^2　　　　E. 5π units^2

*24. On a map, 1 inch represents 2 miles. A circle on the map has a circumference of 5π inches. What area does the circular region on the map represent?

　　A. 10π mi^2　　　　B. 25π mi^2　　　　C. 5π mi^2　　　　D. 100π mi^2　　　　E. 50π mi^2

25. Which statement is a **counterexample** to the conjecture that the square of any integer is greater than the integer?　　A. 4^2 is greater than 4　　　　B. $(-3)^2$ is greater than -3
　　　　C. 0^2 is not greater than 0　　　　D. 200^2 is not greater than 200　　　E. none of these

*26. Which of the following is a counterexample of the given conjecture?
　　Conjecture: The product of two positive numbers is always greater than either number.

　　A. 2,2　　　　B. $\dfrac{1}{2}$, 2　　　　C. 3, 10　　　　D. 2, -1　　　　E. none of these

27. The diagonals of a parallelogram _____?
　　A. are congruent　　　B. are perpendicular　　　C. bisect each other　　　D. are parallel

*28. A diagonal of a rectangle is $\sqrt{15}$ inches. The length of the rectangle is $\sqrt{12}$ inches. Find the area of the rectangle.　　　A. $3\sqrt{2}$ in^2　　　B. 6 in^2　　　C. 9 in^2　　　D. $6\sqrt{5}$ in^2　　E. none of these

*29. If the area of a circle is 49π, what is the circumference of the circle?

　　A. 7　　　　B. 7π　　　　C. 14　　　　D. 14π　　　　E. 49

*30. The vertices of a parallelogram are P(0, 2) , Q(3, 0) , R(7, 4) , S(4, 6). Find the length of the longer sides.　　　A. $4\sqrt{2}$　　　B. $\sqrt{13}$　　　C. $\sqrt{37}$　　　D. $\sqrt{53}$　　　E. none of these

Check your answers:
A A B B B B C C C C D