



Armwood '96

### Geometry Individual Test March

Note: NOTA is none of the above.

1. Two vertical angles have measures  $3x$  and  $x^2 - 28$ . Find  $x$ .

- A. -4                      B. 4                      C. 7                      D. -7                      E. NOTA

2. If  $\angle 1$  and  $\angle 2$  are complements,  $\angle 2$  and  $\angle 3$  are complements, and  $\angle 3$  and  $\angle 4$  are supplements, what are  $\angle 1$  and  $\angle 4$ ?

- A. supplements      B. complements      C. congruent      D. can't tell      E. NOTA

3. If a statement is known to be true, then which of the following must also be true?

- A. its converse      B. its contrapositive      C. its inverse      D. any conditional      E. NOTA

4. The sum of the measures of the interior angles in a polygon is known to be between 2500 and 2600. How many sides does the polygon have?

- A. 10                      B. 12                      C. 15                      D. 17                      E. NOTA

5.  $RT$  is the base of  $\triangle RXT$ .  $\angle R \cong \angle T$ ,  $RT = 4x^2 + 5$ ,  $RX = 11x + 5$ , and  $TX = 6x^2 - 5$ . What is the perimeter of  $\triangle RXT$ ?

- A. 65                      B. 75                      C. 80                      D. 95                      E. NOTA

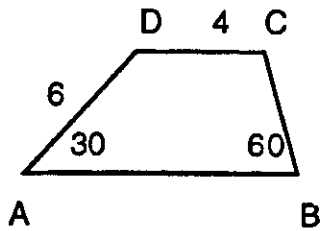
6.  $AC$  is a diagonal of regular pentagon  $ABCDE$ . What does  $m\angle ACD$  equal?

- A. 36                      B. 54                      C. 72                      D. 108                      E. NOTA

7. In quadrilateral  $RSTU$ ,  $RS = 5$ ,  $ST = 6$ ,  $TU = 7$ , and  $UR = 9$ . Which of the following is a possible length of  $SU$ ?

- A. 5                      B. 13                      C. 4                      D. all of these                      E. NOTA

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8.

Find the perimeter of Trapezoid ABCD.

A.  $18 + 6\sqrt{3}$

B.  $18 + 5\sqrt{3}$

C.  $14 + 6\sqrt{3}$

D.  $14 + 5\sqrt{3}$

E. *NOTA*

9. If the measures of the angles of a triangle are in the ratio 3: 3: 4, what is the measure of the largest angle of the triangle?

A. 18

B. 54

C. 72

D. 90

E. *NOTA*

10. Find the ratio of x to y:

$$\frac{4}{y} + \frac{3}{x} = 44 \text{ and } \frac{12}{y} - \frac{2}{x} = 44$$

A. 1 : 2

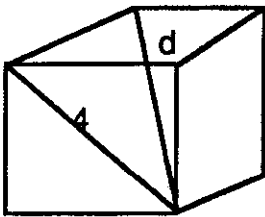
B. 8 : 5

C. 6 : 5

D. 5 : 6

E. *NOTA*

11. The diagonal of a face of a cube is 4 cm. Find the length of the diagonal of the cube.



A.  $4\sqrt{2}$

B.  $\sqrt{21}$

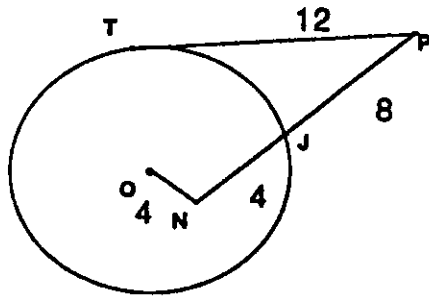
C.  $2\sqrt{6}$

D.  $4\sqrt{6}$

E. *NOTA*



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18.

PT is tangent to circle O and PN intersects circle O at J. Find the radius of the circle.

- A.  $r = 2\sqrt{10}$       B.  $r = 4\sqrt{10}$       C.  $r = 2\sqrt{5}$       D.  $r = 4\sqrt{5}$       E. *NOTA*

19. Find the area of a triangle with the following lengths: 12, 20, 28.

- A.  $45\sqrt{3}$       B.  $60\sqrt{3}$       C.  $75\sqrt{3}$       D. 120      E. *NOTA*

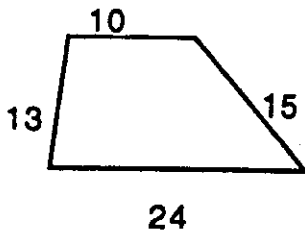
20. Points A, B, C lie on a circle in the order named. The measure of arc AB = 110 and the measure of arc BC = 120. What is the measure of  $\angle ABC$ ?

- A. 55      B. 60      C. 65      D. 90      E. *NOTA*

21. What is the area of a triangle with sides 15, 15, 24?

- A. 108      B. 54      C. 180      D. 216      E. *NOTA*

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22.

Find the area of this trapezoid.

- A. 85                      B. 136                      C. 204                      D. 220                      E. NOTA

23. Quadrilateral ABCD is inscribed in a circle. The measure of  $\angle A = 7x + 20$ , the measure of  $\angle B = 10x + 5$ , and the measure of  $\angle C = 3x + 40$ . Find the measure of  $\angle B$ .

- A. 100                      B. 125                      C. 135                      D. 140                      E. NOTA

24. In  $\triangle TAY$ , the midpoint of TA is (8,4); the midpoint of AY is (15, 7); and the midpoint of YT is (7, 3). Find the coordinates of A.

- A. (0, 0)                      B. (14, 6)                      C. (16, 8)                      D. (6, 14)                      E. NOTA

25. How many segments can be drawn between twelve points, no three of which are collinear?

- A. 50                      B. 56                      C. 60                      D. 66                      E. NOTA

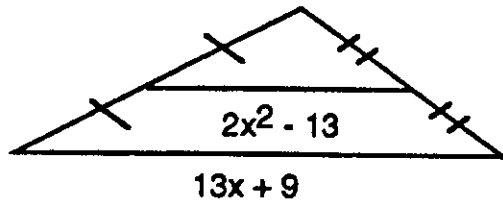
26. Triangle ABC is equilateral,  $AB = 4x - y$ ,  $BC = 2x + 3y$ ,  $AC = 7$ . Find  $y$ .

- A. 5                      B. 4                      C. 3                      D. 2                      E. NOTA

27. A trolley car track rises vertically 45 feet over a horizontal distance of 630 feet. What is the angle of elevation of the track to the nearest degree?

- A. 8                      B. 6                      C. 4                      D. 2                      E. NOTA

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Find the length of the median.

- A. 37                      B. 25                      C. 20                      D. 5                      E. NOTA

29. One angle of a quadrilateral has a measure which is twice that of a second angle and half of a third. The fourth angle has measure 80. Find the measure of the largest angle.

- A. 40                      B. 80                      C. 120                      D. 160                      E. NOTA

30. Today's geometry texts contain much of the material found in Euclid's *Elements*. How many books are there of his *Elements*?

- A. 10                      B. 13                      C. 17                      D. 20                      E. NOTA