

24HourAnswers.com

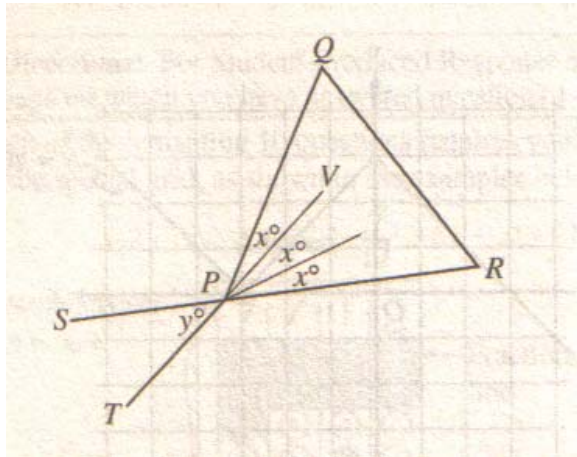
Online Homework

Focused Exercises for Math SAT

Skill Set 7: Geometry - Angles

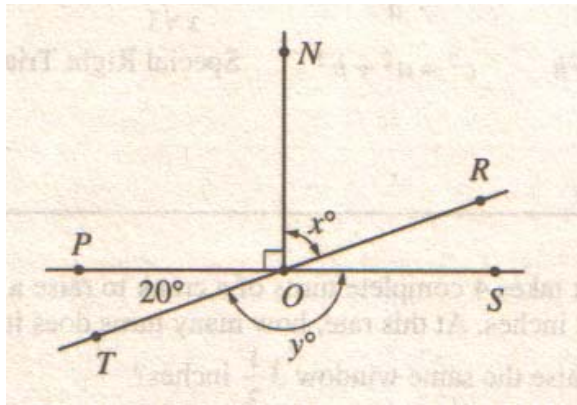
Many of the problems in this exercise set came from The College Board, writers of the SAT exam.

1.



In the figure above, $\triangle PQR$ is equilateral and \overline{SR} and \overline{TV} intersect at point P . What is the value of y ?

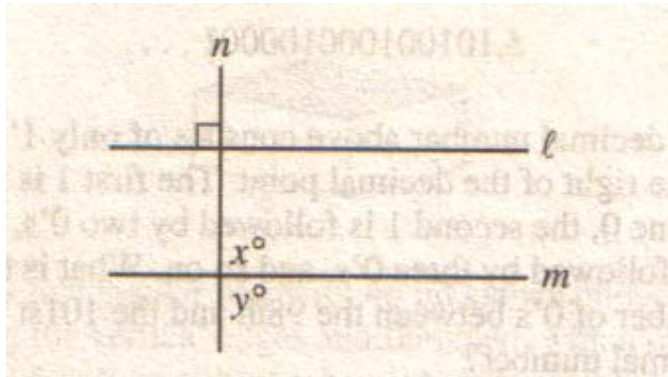
2.



In the figure above, \overline{PS} and \overline{TR} intersect at O and \overline{ON} is perpendicular to \overline{PS} . What is the value of $y - x$?

- (A) 20
- (B) 70
- (C) 90
- (D) 100
- (E) 140

3.

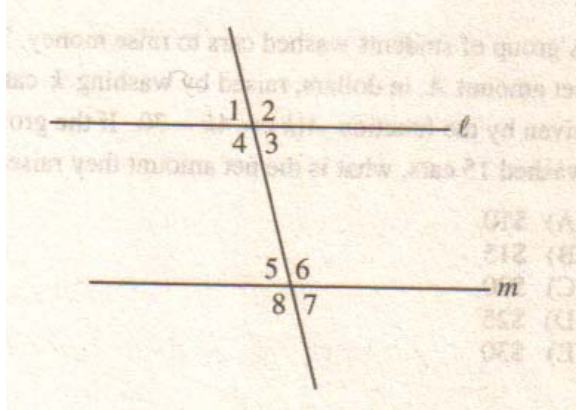


NOTE: Figure not drawn to scale.

In the figure above, $l \perp n$ and $x > 90$. Which of the following must be true?

- (A) $y < 90$
- (B) $y > 90$
- (C) $y = 90$
- (D) $n \perp m$
- (E) $l \parallel m$

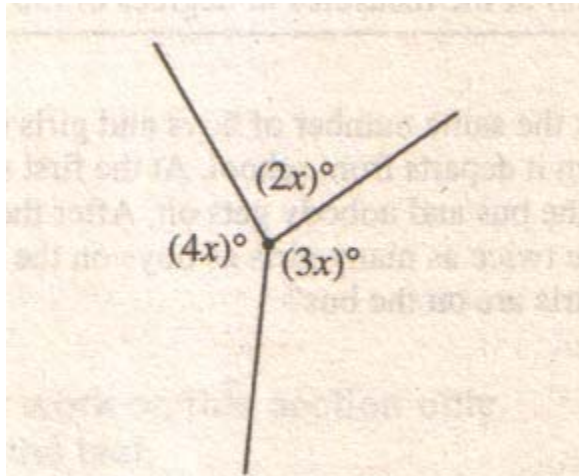
4.



In the figure above, if $l \parallel m$, then the sum of the measures of angles 2 and 4 must equal the sum of the measures of which of the following pairs of angles?

- (A) 5 and 6
- (B) 5 and 7
- (C) 6 and 7
- (D) 6 and 8
- (E) 7 and 8

5.

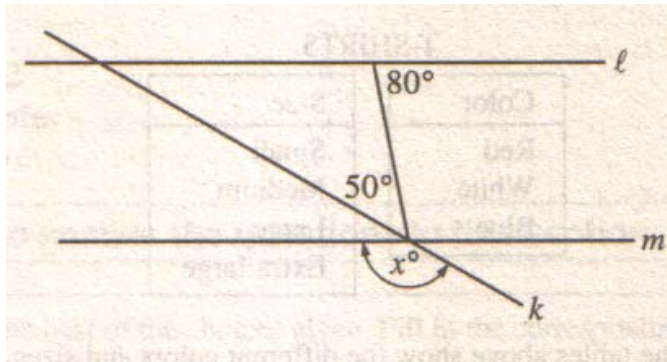


NOTE: Figure not drawn to scale.

In the figure above, three line segments meet at a point to form three angles. What is the value of x ?

- (A) 20
- (B) 36
- (C) 40
- (D) 45
- (E) 60

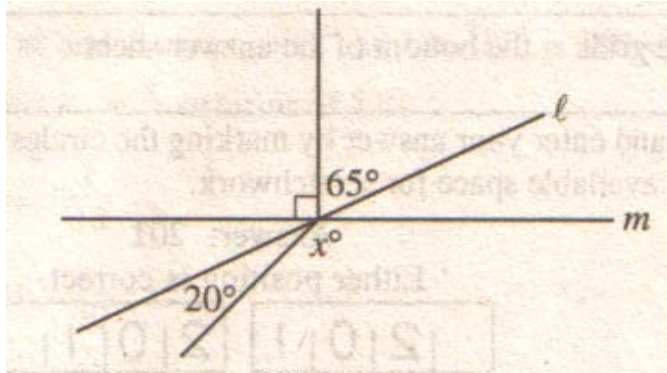
6.



In the figure above, line ℓ is parallel to line m . What is the value of x ?

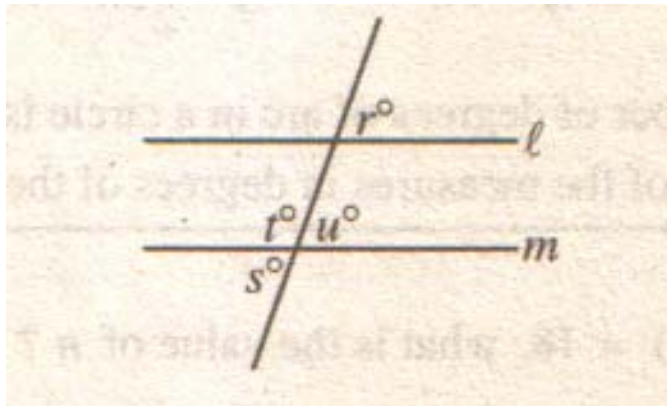
- (A) 150
- (B) 140
- (C) 130
- (D) 110
- (E) 100

7.



What is the value of x in the figure above?

8.

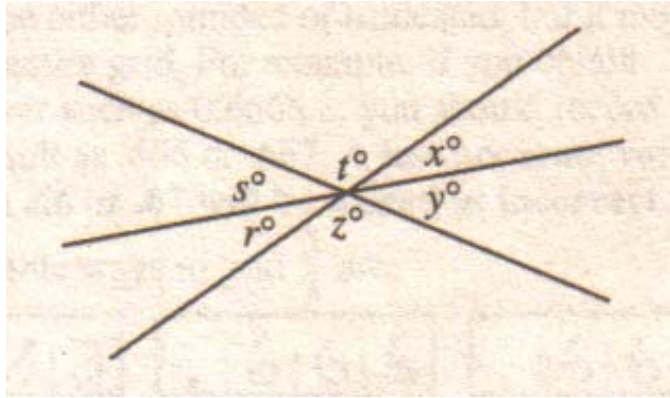


NOTE: Figure not drawn to scale.

In the figure above, $l \parallel m$ and $r = 50$. What is the value of $s + t + u$?

- (A) 230
- (B) 240
- (C) 250
- (D) 270
- (E) 310

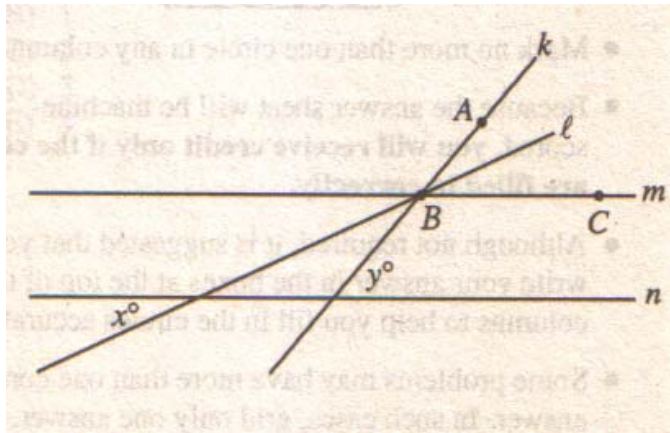
9.



Three lines intersect in a point as shown in the figure above. Which of the following pairs of angle measures is NOT sufficient for determining all six angle measures?

- (A) t and z
- (B) t and y
- (C) s and x
- (D) r and t
- (E) r and s

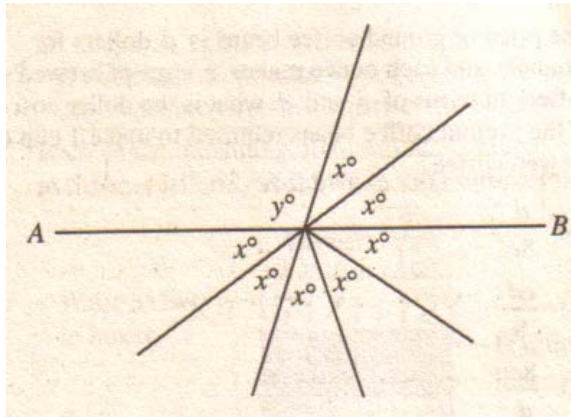
10.



NOTE: Figure not drawn to scale.

In the figure above, $m \parallel n$ and l bisects $\angle ABC$. If $45 < y < 55$, what is one possible value for x ?

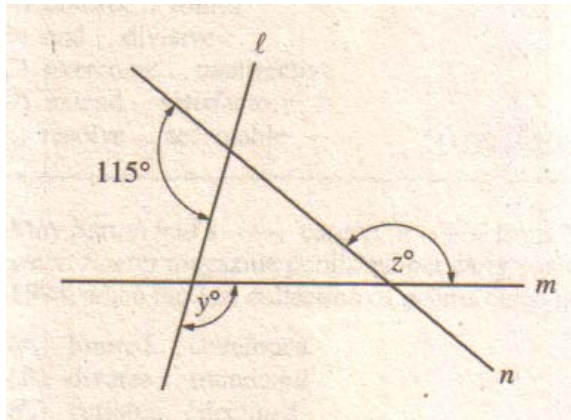
11.



In the figure above, if AB is a line, what is the value of y ?

- (A) 108
- (B) 114
- (C) 117
- (D) 120
- (E) 135

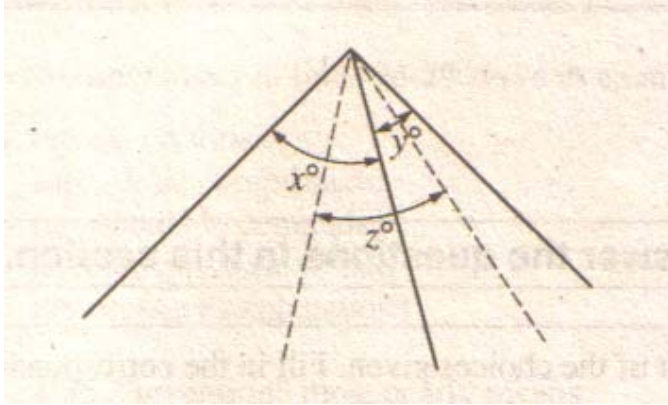
12.



In the figure above, $y + z =$

- (A) 180
- (B) 195
- (C) 215
- (D) 230
- (E) 245

13.

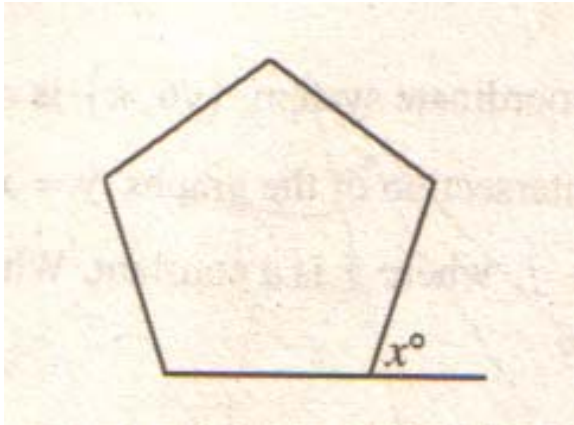


NOTE: Figure not drawn to scale.

In the figure above, if $x = 70$ and $y = 40$ and the dotted lines bisect the angles with measures x° and y° , what is the value of z ?

- (A) 30
- (B) 40
- (C) 45
- (D) 50
- (E) 55

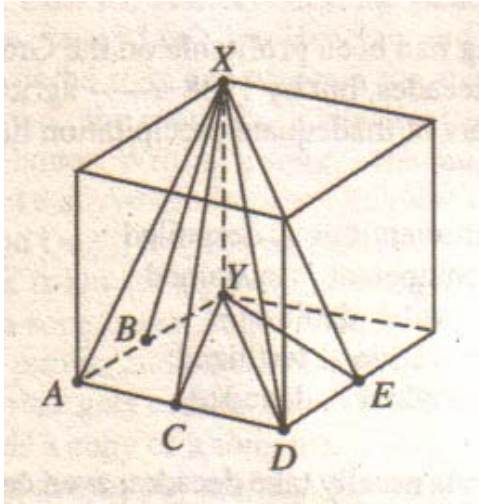
14.



If all interior angles of the polygon above are congruent, then $x =$

- (A) 60
- (B) 65
- (C) 72
- (D) 80
- (E) 84

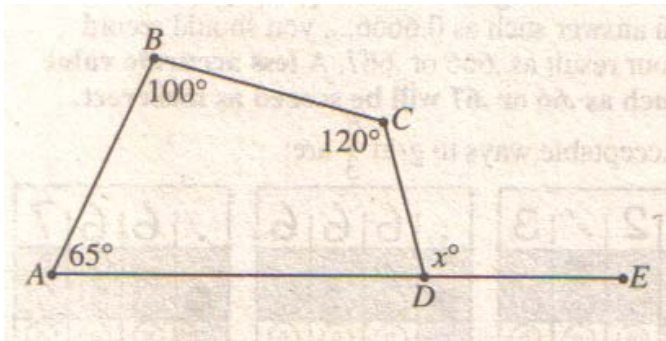
15.



In the cube shown above, points B , C , and E are midpoints of three of the edges. Which of the following angles has the least measure?

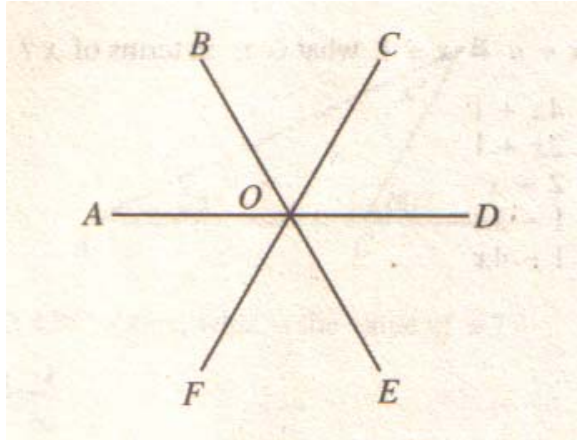
- (A) $\angle XAY$
- (B) $\angle XBY$
- (C) $\angle XCY$
- (D) $\angle XDY$
- (E) $\angle XEY$

16.



In the figure above, points A , D , and E lie on the same line. What is the value of x ?

17.

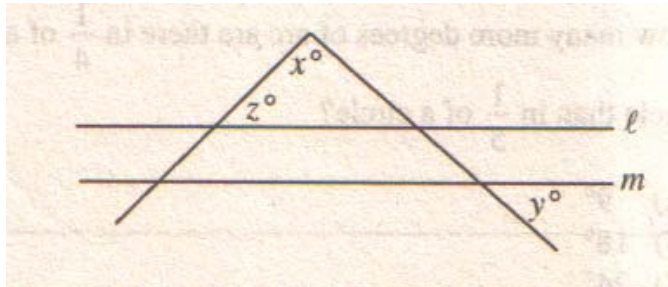


NOTE: Figure not drawn to scale.

In the figure above, \overline{AD} , \overline{BE} , and \overline{CF} intersect at point O . If the measure of $\angle AOB$ is 80° and \overline{CF} bisects $\angle BOD$, what is the measure of $\angle EOF$?

- (A) 40°
- (B) 50°
- (C) 60°
- (D) 70°
- (E) 80°

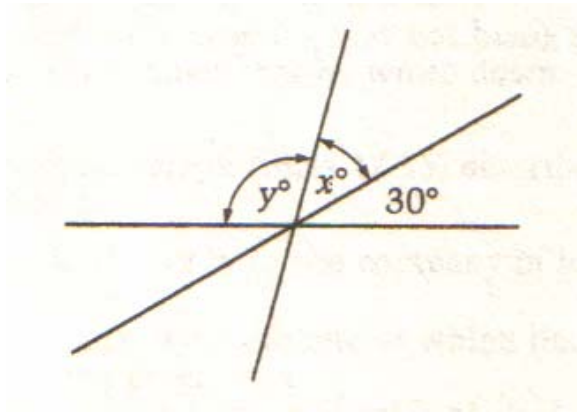
18.



In the figure above, if $l \parallel m$, what does z equal in terms of x and y ?

- (A) $x + y$
- (B) $x - y$
- (C) $180 - x$
- (D) $180 - x + y$
- (E) $180 - x - y$

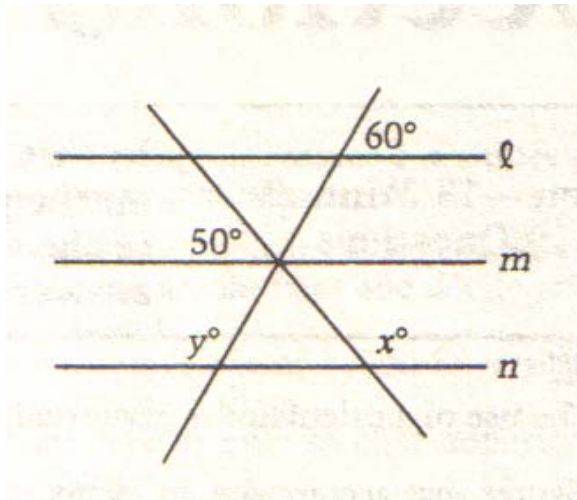
19.



Three lines intersect in the figure above. What is the value of $x + y$?

- (A) 170
- (B) 160
- (C) 150
- (D) 140
- (E) 120

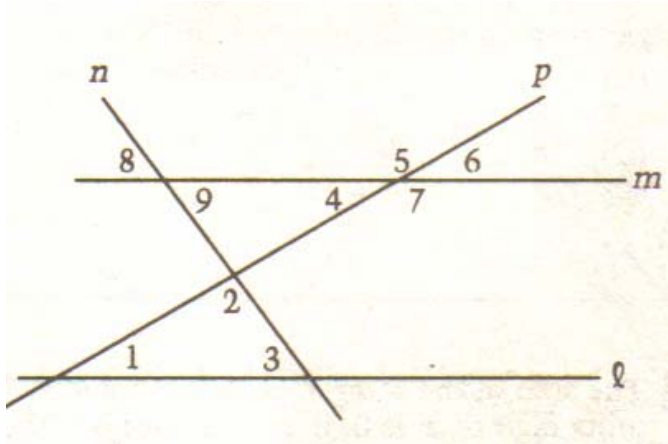
20.



In the figure above, five lines intersect as shown. If lines l , m , and n are parallel, what is the value of $x + y$?

- (A) 210
- (B) 220
- (C) 230
- (D) 240
- (E) 250

21.



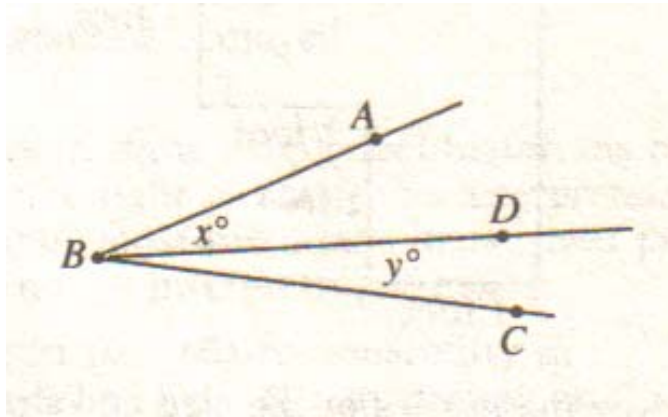
In the figure above, line ℓ is parallel to line m . Which of the following pairs of angles have equal measures?

- I. 1 and 4
- II. 3 and 8
- III. 5 and 7

- (A) I only
- (B) I and II only
- (C) I and III only
- (D) II and III only
- (E) I, II, and III

22. Four lines intersect in one point, forming 8 equal angles that are non-overlapping. What is the measure, in degrees, of one of these angles?

23.

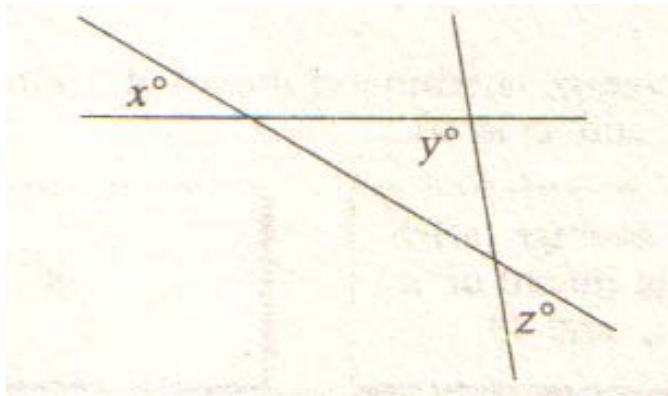


NOTE: Figure not drawn to scale.

In the figure above, point D is in the interior of $\angle ABC$ and the measure of $\angle ABD$ is $\frac{3}{5}$ the measure of $\angle ABC$. If $y = 24$, then $x =$

- (A) 72
- (B) 60
- (C) 48
- (D) 40
- (E) 36

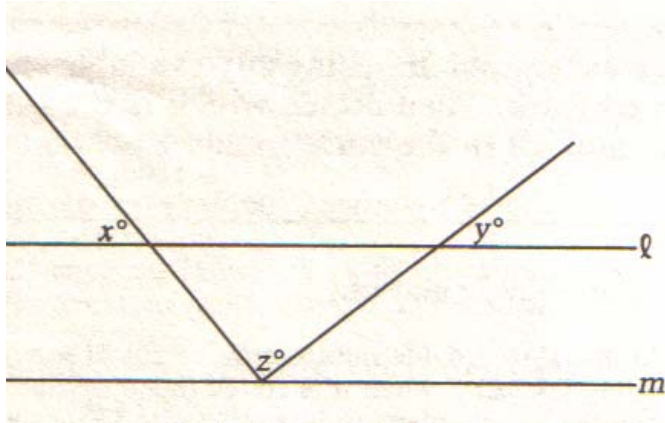
24.



NOTE: Figure not drawn to scale.

In the figure above, if $x = 25$ and $z = 30$, what is the value of y ?

25.

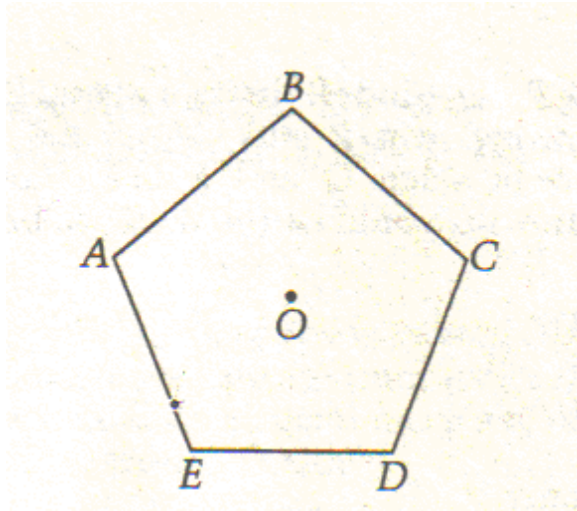


NOTE: Figure not drawn to scale.

In the figure above, $\ell \parallel m$. If $x = 80$ and $y = 70$, what is the value of z ?

- (A) 30
- (B) 60
- (C) 75
- (D) 90
- (E) 150

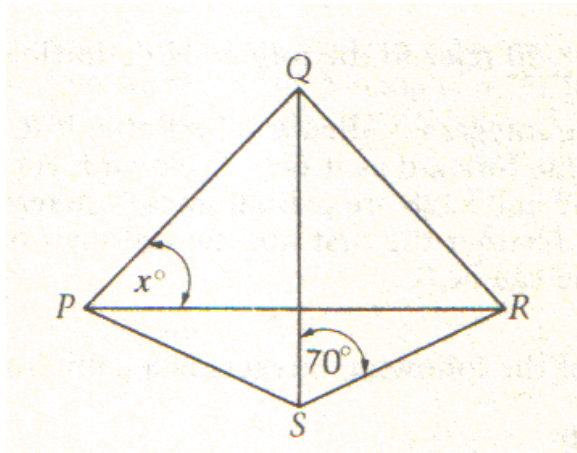
26.



Pentagon $ABCDE$, shown above, has equal sides and equal angles. If O is the center of the pentagon, what is the degree measure of $\angle EOD$ (not drawn)?

- (A) 60°
- (B) 68°
- (C) 70°
- (D) 72°
- (E) 75°

27.

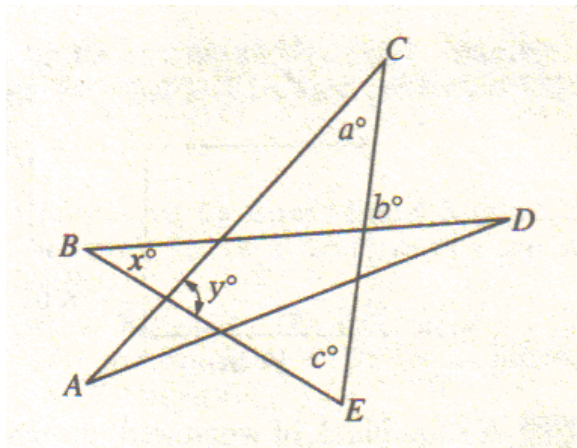


NOTE: Figure not drawn to scale.

In the quadrilateral above, if $\overline{PQ} = \overline{SQ} = \overline{RQ}$ and $\overline{PS} = \overline{SR}$, then $x =$

- (A) 30
- (B) 40
- (C) 50
- (D) 60
- (E) 70

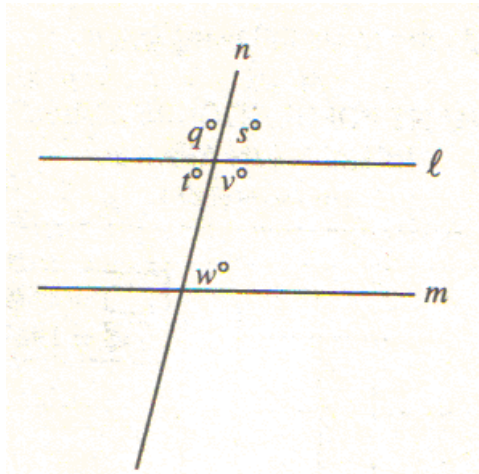
28.



NOTE: Figure not drawn to scale.

In the figure above, \overline{AC} , \overline{CE} , \overline{EB} , \overline{BD} , and \overline{DA} are line segments. If $a = 40$, $b = 70$, and $c = 50$, what is the value of $x + y$?

29.

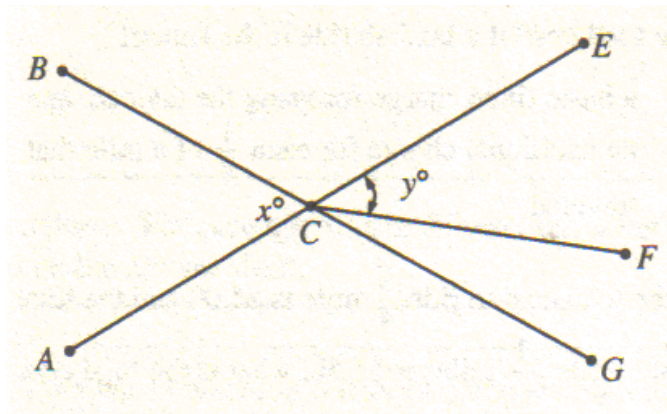


NOTE: Figure not drawn to scale.

In the figure above, $l \parallel m$. If $v = 2w$, which of the following must be equal to q ?

- (A) $v + t$
- (B) $v - t$
- (C) t
- (D) $2v$
- (E) $s + t$

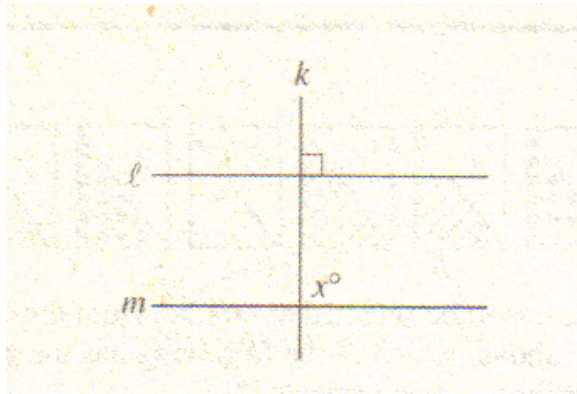
30.



NOTE: Figure not drawn to scale.

In the figure above, line segments \overline{AE} and \overline{BG} intersect at C . If $x = 80$ and \overline{CF} bisects $\angle ECG$, what is the value of y ?

31.

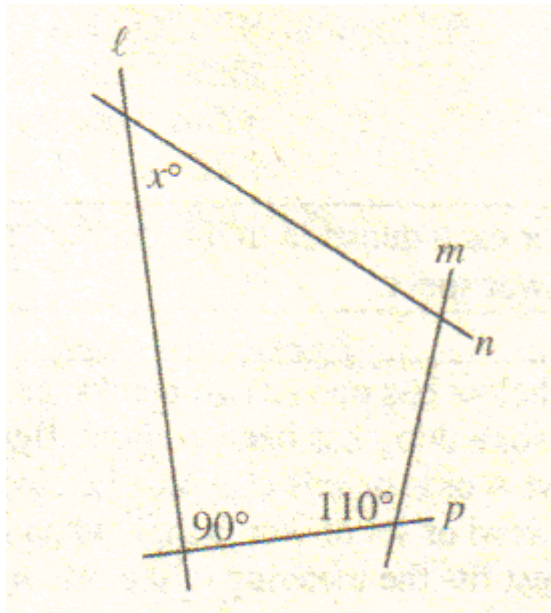


NOTE: Figure not drawn to scale.

In the figure above, lines ℓ and m are not parallel. Which of the following CANNOT be the value of x ?

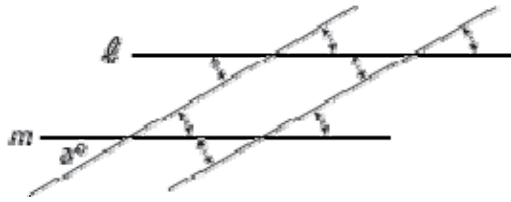
- (A) 89
- (B) 90
- (C) 91
- (D) 92
- (E) 93

32.



In the figure above, if the angle (not shown) where lines n and p intersect is twice as large as the angle (also not shown) where lines ℓ and m intersect, what is the value of x ?

33.



In the figure above, four lines intersect as shown. If $a = 30$ and line l is parallel to line m , how many of the seven angles marked with arrows must have measure 30° ?

- (A) One
- (B) Three
- (C) Four
- (D) Five
- (E) Seven