

$$\tan = \frac{\text{SIN}}{\text{COS}}$$

$$.5 = \frac{x}{.2}$$

$$\tan (.5)$$

$$\cos (.2)$$

$$\sin (?)$$

$$\tan = \frac{O}{A}$$

$$\cos = \frac{A}{H}$$

$$\sin = \frac{O}{H}$$

$$\frac{\frac{O}{H}}{\frac{A}{H}} = \frac{O}{A}$$

$$\frac{\sin}{\cos} = \frac{\frac{O}{H}}{\frac{A}{H}}$$

48 The perimeters of two squares are in a ratio of 4 to 9. What is the ratio between the areas of the two squares?

- A 2 to 3
- B 4 to 9
- C 16 to 27
- D 16 to 81

#9

$$\sin 27 = .4540$$

$$\cos 27 = .8910$$

$$\tan 27 = .5095$$

CSG00013

#8

$$\sin 18^\circ = .3090$$

$$\cos 18^\circ = .9511$$

$$\tan 18^\circ = .3249$$

48

The perimeters of two squares are in a ratio of 4 to 9. What is the ratio between the areas of the two squares?

(S) 4:9

- A 2 to 3
- B 4 to 9
- C 16 to 27
- D 16 to 81

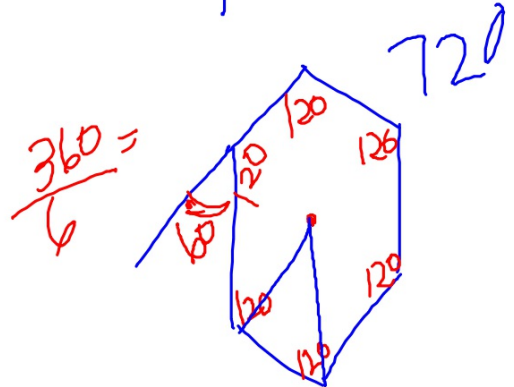
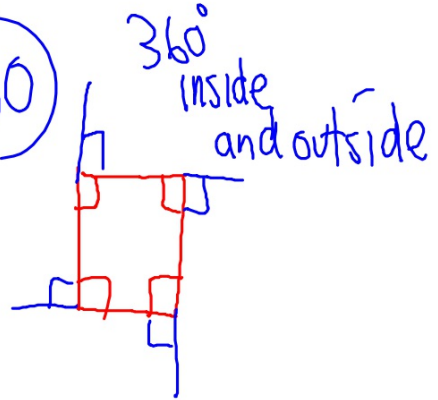
(A)

16:81

total exterior $\angle = 360$



CSG00013



49

Lea made two candles in the shape of right rectangular prisms. The first candle is 15 cm high, 8 cm long, and 8 cm wide. The second candle is 5 cm higher but has the same length and width. How much additional wax was needed to make the taller candle?

- A 320 cm³
- B 640 cm³
- C 960 cm³
- D 1280 cm³



$$5 \cdot 8 \cdot 8$$

$$40 \cdot 8$$

$$320$$

50

Two angles of a triangle have measures of 55° and 65° . Which of the following could *not* be a measure of an exterior angle of the triangle?

A 115°

B 120°

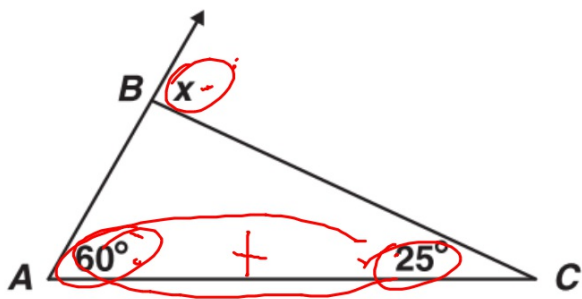
C 125°

D 130°

51 The sum of the interior angles of a polygon is the same as the sum of its exterior angles. What type of polygon is it?

- A quadrilateral
- B hexagon
- C octagon
- D decagon

52 What is $m\angle x$?



A 35°

B 60°

C 85°

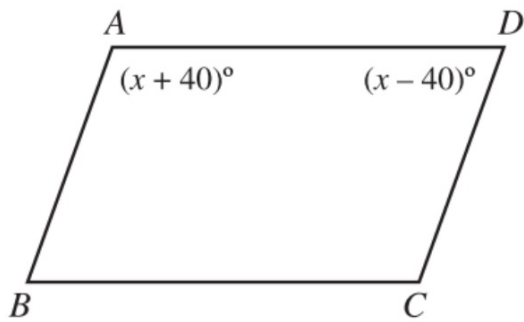
D 95°

53 If the measure of an exterior angle of a regular polygon is 120° , how many sides does the polygon have?

- A 3
- B 4
- C 5
- D 6

$$\frac{360}{10}$$
$$120 \overline{) 360} \quad 3$$

54 In the figure below, $\overline{AB} \parallel \overline{CD}$.



What is the value of x ?

- A 40
- B 50
- C 80
- D 90

55

The measures of the interior angles of a pentagon are $2x$, $6x$, $4x - 6$, $2x - 16$, and $6x + 2$. What is the measure, in degrees, of the largest angle?

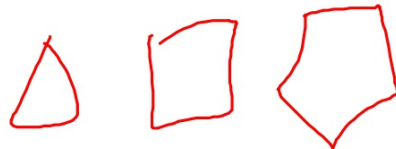
- A 28
- B 106
- C 170
- D 174

Interior $(n-2)180$

5 sides

$= 540$

solve X



180

360

540

+180

+180

+180

56 A regular polygon has 12 sides. What is the measure of each exterior angle?

A 15°

B 30°

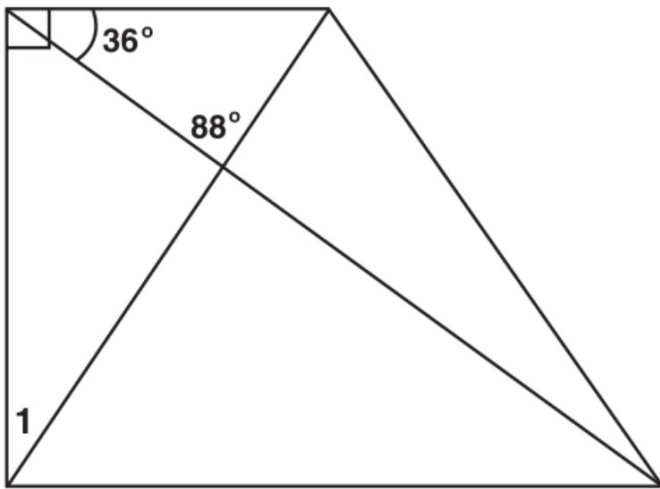
C 45°

D 60°

360

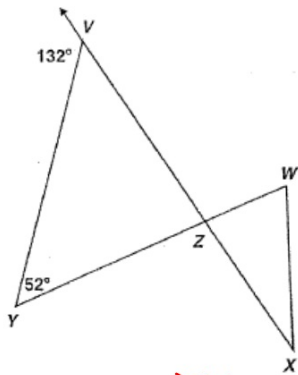
$$\frac{360}{12}$$

57 What is $m\angle 1$?



- A 34°
- B 56°
- C 64°
- D 92°

58 What is $m\angle WZX$?



- A 80°
- B 90°
- C 100°
- D 110°

$a^2 + b^2 = c^2$

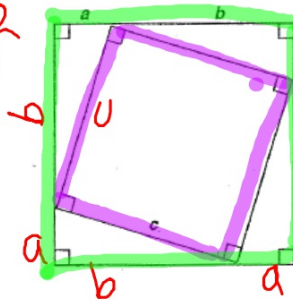
$a^2 + b^2 = a^2 + 2ab + b^2$

CSG0002

59 What is the measure of an exterior angle of a regular hexagon?

- A 30°
- B 60°
- C 120°
- D 180°

60 A diagram from a proof of the Pythagorean theorem is pictured below.



Which statement would *not* be used in the proof of the Pythagorean theorem?

- A The area of a triangle equals $\frac{1}{2}ab$.
- B The four right triangles are congruent.
- C The area of the inner square is equal to half of the area of the larger square.
- D The area of the larger square is equal to the sum of the areas of the smaller square and the four congruent triangles.

CSG0002

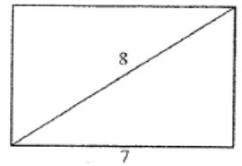
inner \square
 c^2
 outer
 $(b+a)^2$
 $a^2 + 2ab + b^2$

61 A right triangle's hypotenuse has length 5. If one leg has length 2, what is the length of the other leg?

- A 3
- B $\sqrt{21}$
- C $\sqrt{29}$
- D 7

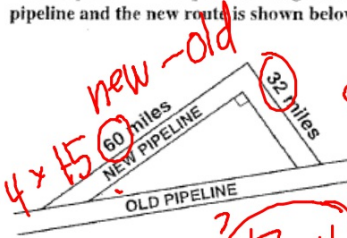


63 What is the height of this rectangle?



- A 1 unit
- B 6 units
- C $\sqrt{15}$ units
- D $\sqrt{113}$ units

62 A new pipeline is being constructed to re-route its oil flow around the exterior of a national wildlife preserve. The plan showing the old pipeline and the new route is shown below.

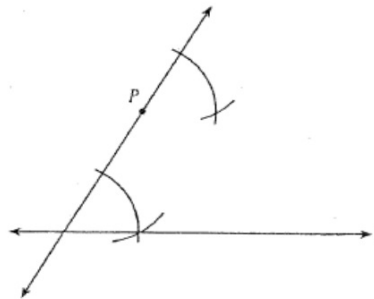


About how many extra miles will the oil flow once the new route is established?

- A 24
- B 68
- C 92
- D 160

Handwritten notes: $17 \times 4 = 68$
New 92
Old - 68

64 Marsha is using a straightedge and compass to do the construction shown below.



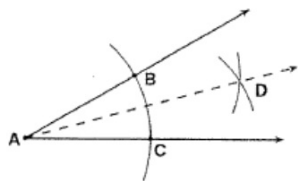
Which *best* describes the construction Marsha is doing?

- A a line through P parallel to line l
- B a line through P intersecting line l
- C a line through P congruent to line l
- D a line through P perpendicular to line l

65

Given: angle A

What is the first step in constructing the angle bisector of angle A ?

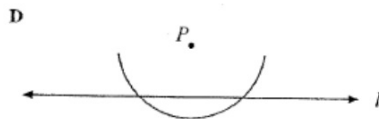
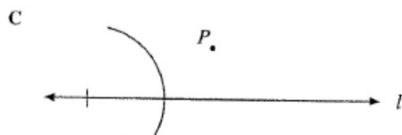
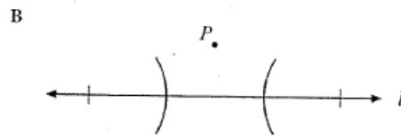
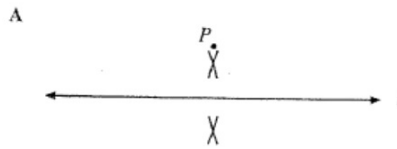


- A Draw ray \overline{AD} .
- B Draw a line segment connecting points B and C .
- C From points B and C , draw equal arcs that intersect at D .
- D From point A , draw an arc that intersects the sides of the angle at points B and C .

CS010033

66

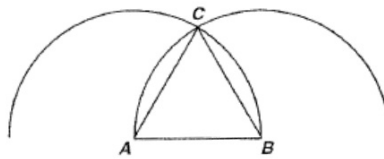
Scott is constructing a line perpendicular to line l from point P . Which of the following should be his first step?



CS001028

67 Which triangle can be constructed using the following steps?

1. Put the tip of the compass on point A .
2. Open the compass so that the pencil tip is on point B .
3. Draw an arc above \overline{AB} .
4. Without changing the opening, put the metal tip on point B and draw an arc intersecting the first arc at point C .
5. Draw \overline{AC} and \overline{BC} .



- A right
- B obtuse
- C scalene
- D equilateral

