Bellwork Alg 2B Wednesday, October 18, 2017

1. The number of mosquitos in a certain area was increasing 18% every day. If there were 5000 mosquitos today find the number of mosquitos in the given amount of time. Round to the nearest whole number.

a) 5 days b) 2 weeks c) 6 hours

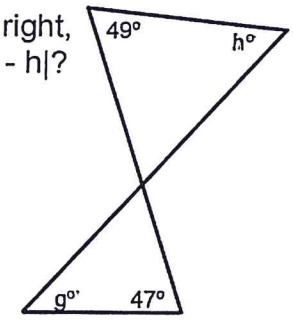
2. The amount of snow was decreasing 2% each hour. There was 40 inches of snow at 1:00pm. Find the amount of snow at each given time.

a) 10:00 am the same day b) 2:45 pm the same day

c) 5:25pm the same day d) 6:30 pm the next day

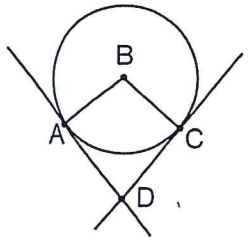
3. In the figure at the right, what is the value of $|g - h|$?

A. 2
B. 41
C. 43
D. 84
E. 86



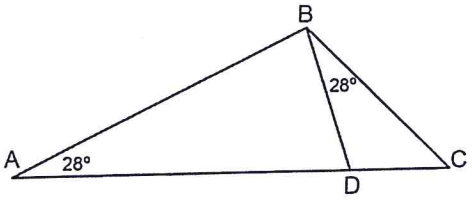
Note: figure not drawn to scale.

4. In the figure at the right, DA and DC are tangent to the circle with center B at points A and C, respectively. If $\angle ABC = \frac{2}{7} \cdot \angle ADC$, what is the degree measure of $\angle ADC$?



Note: Figure not drawn to scale.

A. 40 B. 51 C. 129 D. 140 E. 154

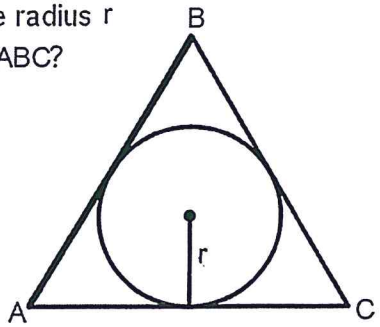


5. In the figure above, which of the following ratios has the same value as $\frac{AB}{BC}$?

A. $\frac{BD}{DC}$ B. $\frac{BC}{AC}$ C. $\frac{AD}{BD}$ D. $\frac{DC}{BC}$

6. In the figure to the right, a circle is tangent to the sides of equilateral $\triangle ABC$ and the radius r equals 5. What is the perimeter of $\triangle ABC$?

A. $15\sqrt{3}$
B. $30\sqrt{3}$
C. 30
D. 60
E. $60\sqrt{2}$



Bellwork Alg 2B Wednesday, October 18, 2017

Answers

1. The number of mosquitos in a certain area was increasing 18% every day. If there were 5000 mosquitos today find the number of mosquitos in the given amount of time. Round to the nearest whole number.

a) 5 days

$X = 5$

11,439 mosquitos

b) 2 weeks

$X = 14$

50,736 Mosquitos

c) 6 hours

$X = \frac{6}{24} = \frac{1}{4} = .25$

5 211 Mosquitos

$100 + 18 = 118\% \rightarrow 1.18$

EQ:

$5000(1.18)^X$

X = #days

2. The amount of snow was decreasing 2% each hour. There was 40 inches of snow at 1:00pm. Find the amount of snow at each given time.

a) 10:00 am the same day

$X = -3$

42.50 in

b) 2:45 pm the same day

$X = 1\frac{3}{4} = 1.75$

38.61 in

$100 - 2 = 98\% \rightarrow .98$

EQ:

$40(.98)^X$

X = # hours since 1:00pm

c) 5:25pm the same day

$X = 4$ hrs & 25min $= 4 + \frac{25}{60} = 4\frac{5}{12}$

36.59 in

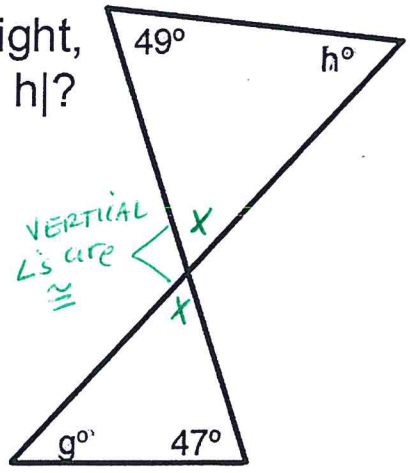
d) 6:30 pm the next day

$X = 29\frac{1}{2}$

22.04 in

3. In the figure at the right, what is the value of $|g - h|$?

A. 2
B. 41
C. 43
D. 84
E. 86



Note: figure not drawn to scale.

$49 + x + h = 180$

$47 + x + g = 180$

$49 + x + h = 47 + x + g$

$-h \qquad -h$

$49 + x = 47 + x + g - h$

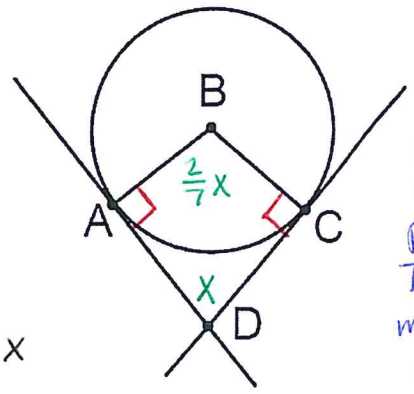
$-x \qquad -x$

$49 = 47 + g - h$

$-47 \quad -47$

$g - h = 2$

4. In the figure at the right, DA and DC are tangent to the circle with center B at points A and C, respectively. If $\angle ABC = \frac{2}{7} \bullet \angle ADC$, what is the degree measure of $\angle ADC$?



$\angle ADC = x$

$\angle ABC = \frac{2}{7}x$

Radius drawn to point of Tangency makes a RT. angl

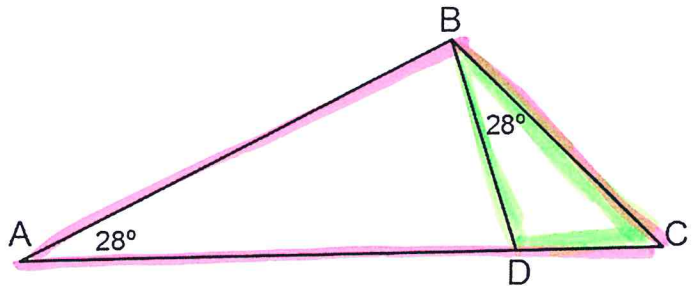
Note: Figure not drawn to scale.

A. 40 B. 51 C. 129 D. 140 E. 154

$90 + 90 + x + \frac{2}{7}x = 360$

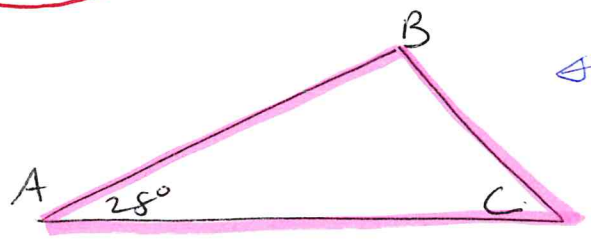
$\frac{7}{9} \cdot \frac{9}{7}x = 180 \cdot \frac{7}{9}$

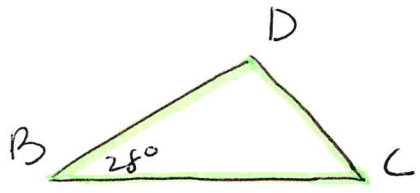
$x = 140$



5. In the figure above, which of the following ratios has the same value as $\frac{AB}{BC}$?

A. $\frac{BD}{DC}$ B. $\frac{BC}{AC}$ C. $\frac{AD}{BD}$ D. $\frac{DC}{BC}$





$\frac{AB}{BC}$ as $\frac{BD}{DC}$

6. In the figure to the right, a circle is tangent to the sides of equilateral $\triangle ABC$ and the radius r equals 5. What is the perimeter of $\triangle ABC$?

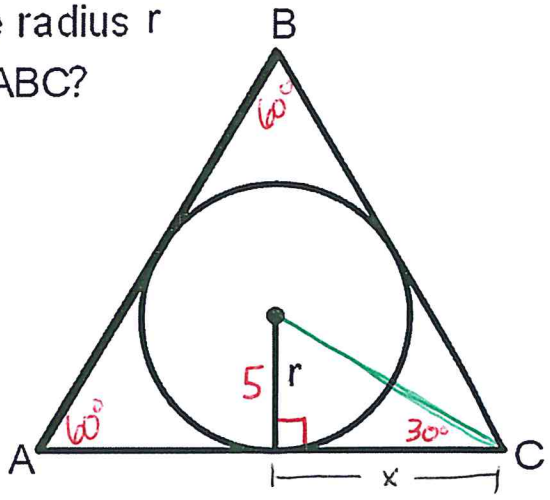
A. $15\sqrt{3}$

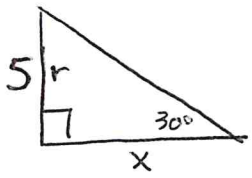
B. $30\sqrt{3}$

C. 30

D. 60

E. $60\sqrt{2}$

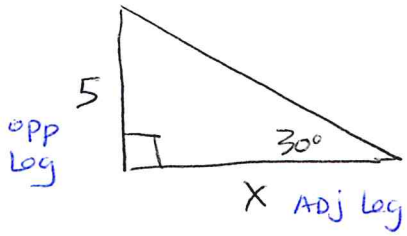




2 methods

(1)

SOHCAHTOA



$\tan 30° = \frac{5}{x}$

$x = 8.66$

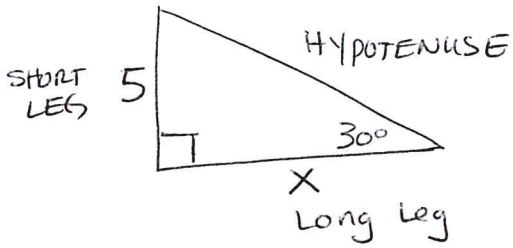
$AC = 2x = 17.32$

perimeter $= 3(17.32)$

$p = 51.96 \approx 30\sqrt{3}$

(2)

30-60-90° $\triangle$s



Long leg = short leg $\times \sqrt{3}$

Long leg $= x = 5\sqrt{3}$

$AC = 2x = 10\sqrt{3}$

perimeter $= 3(10\sqrt{3})$

$= 30\sqrt{3}$