6.1 & 6.2 Test Review Deskmaze Questions

Name Key Period

#16-20, 25-28

#4 & #30 → pick the closest answer. → Heron's Formula

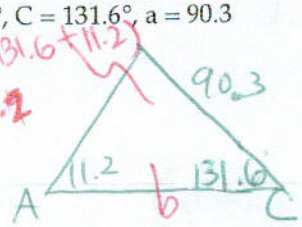
#12 typo

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Solve the triangle. Round lengths to the nearest tenth and angle measures to the nearest degree.

A 1) A = 11.2°, C = 131.6°, a = 90.3

AAS



$\frac{90.3}{\sin 11.2} = \frac{b}{\sin 37.2}$

$b = 281.1$

A) B = 37.2°, b = 29, c = 23.6

B) B = 37.2°, b = 347.7, c = 281.1

C) B = 36.8°, b = 278.5, c = 347.7

D) B = 37.2°, b = 281.1, c = 347.7

Two sides and an angle (SSA) of a triangle are given. Determine whether the given measurements produce one triangle, two triangles, or no triangle at all. Solve each triangle that results. Round lengths to the nearest tenth and angle measures to the nearest degree.

E 2) B = 29°, b = 19.7, a = 20.32

SSA

✓ B is acute

✓ 19.7 20.32

✓ 19.7 □ 20.32 sin 29

19.7 > 9.85 two solutions

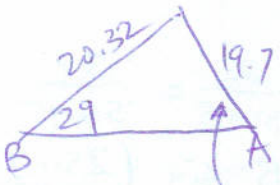
swing height

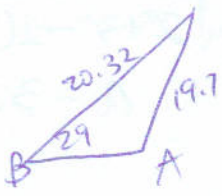
A) $A_1 = 30°, C_1 = 121°, c_1 = 34.8$;
$A_2 = 150°, C_2 = 1°, c_2 = 0.7$

B) A = 150°, C = 1°, c = 0.7

C) A = 30°, C = 121°, c = 34.8

D) no triangle





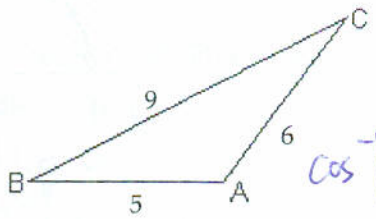
$\frac{20.32}{\sin A} = \frac{19.7}{\sin 29}$

$A = \sin^{-1}\left(\frac{20.32 \sin 29}{19.7}\right)$

$A = 30°$

Solve the triangle. Round lengths to the nearest tenth and angle measures to the nearest degree.

3)



SSS

$5^2 = 6^2 + 9^2 - 2(6)(9)\cos C$

$\cos^{-1}\left(\frac{5^2 - 6^2 - 9^2}{-2(6)(9)}\right) = C = 31.6°$

$\frac{5}{\sin 31.6} = \frac{6}{\sin B}$

$B = \sin^{-1}\left(\frac{6 \sin 31.6}{5}\right)$

$B = 39°$

A) A = 39°, B = 109°, C = 32°
B) A = 109°, B = 39°, C = 32°
C) A = 109°, B = 32°, C = 39°
D) A = 39°, B = 32°, C = 109°

Use Heron's formula to find the area of the triangle. Round to the nearest square unit.

4) a = 10 meters, b = 18 meters, c = 11 meters

$s = \frac{1}{2}(10 + 18 + 11) = \frac{39}{2} = 19.5$

$\text{Area} = \sqrt{19.5(19.5-10)(19.5-18)(19.5-11)} = 48.6$

Pick the closest one

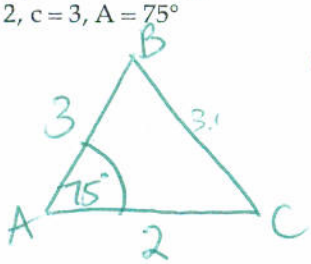
TYPO test bank

A) 51 square meters
B) 26 square meters
C) 104 square meters
D) 102 square meters

Solve the triangle. Round lengths to the nearest tenth and angle measures to the nearest degree.

5) b = 2, c = 3, A = 75°

SAS



$a = \sqrt{2^2 + 3^2 - 2(2)(3)\cos 75}$

$a = 3.1$

$\frac{2}{\sin B} = \frac{3.1}{\sin 75}$

$B = \sin^{-1}\left(\frac{2 \sin 75}{3.1}\right)$

$B = 38.5$

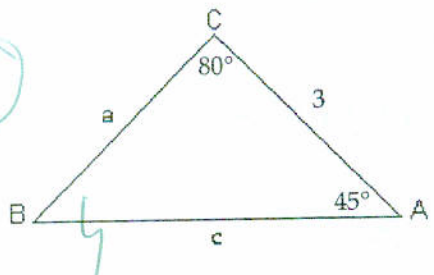
A) a = 2.1, B = 67°, C = 38°
B) a = 3.1, B = 38°, C = 67°
C) a = 4.1, B = 38°, C = 67°
D) a = 3.1, B = 67°, C = 38°

Solve the triangle.

6)

G

ASA



$\frac{3}{\sin 55} = \frac{a}{\sin 45}$

$a = \frac{3 \sin 45}{\sin 55} = 2.59$

$180 - (80 + 45) = 55°$

A) B = 55°, a = 3.61, c = 2.59

C) B = 55°, a = 2.59, c = 3.61

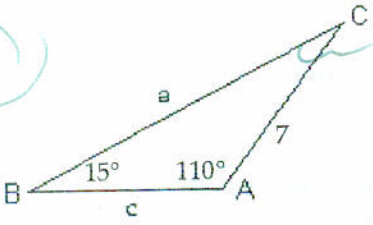
B) B = 60°, a = 2.59, c = 3.61

D) B = 50°, a = 3.61, c = 2.59

7)

S

AAS



$180 - (15 + 110) = 55°$

$\frac{7}{\sin 15} = \frac{c}{\sin 55}$

$c = \frac{7 \sin 55}{\sin 15} = 22.15$

A) C = 50°, a = 22.15, c = 25.41

C) C = 60°, a = 25.41, c = 22.15

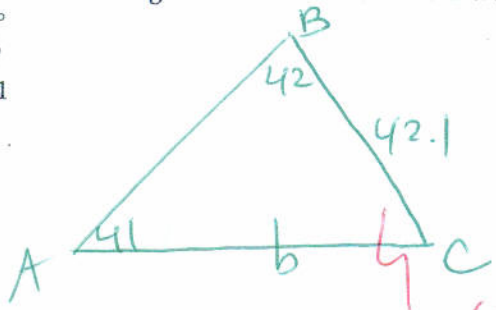
B) C = 55°, a = 22.15, c = 25.41

D) C = 55°, a = 25.41, c = 22.15

Solve the triangle. Round lengths to the nearest tenth and angle measures to the nearest degree.

8) A = 41°
B = 42°
a = 42.1

AAS



$\frac{42.1}{\sin 41} = \frac{b}{\sin 42}$

$b = \frac{42.1 \sin 42}{\sin 41}$

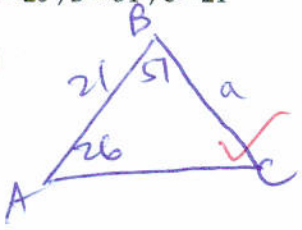
$b = 42.9$

$180 - (41 + 42) = 97$

A) C = 98°, b = 42.9, c = 63.7
B) C = 98°, b = 63.7, c = 42.9
C) C = 97°, b = 63.7, c = 42.9
D) C = 97°, b = 42.9, c = 63.7

9) A = 26°, B = 51°, c = 21

ASA



$180 - (26 + 51) = 103$

$\frac{21}{\sin 103} = \frac{a}{\sin 26}$

$a = \frac{21 \sin 26}{\sin 103}$

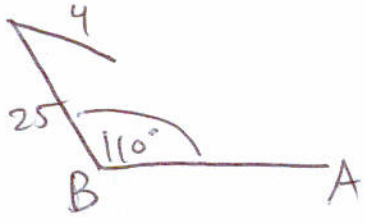
$a = 9.4$

A) C = 103°, a = 9.4, b = 16.7
B) C = 103°, a = 16.7, b = 9.4
C) C = 97°, a = 9.3, b = 16.4
D) C = 103°, a = 46.7, b = 26.3

Two sides and an angle (SSA) of a triangle are given. Determine whether the given measurements produce one triangle, two triangles, or no triangle at all. Solve each triangle that results. Round lengths to the nearest tenth and angle measures to the nearest degree.

10) B = 110°, b = 4, a = 25

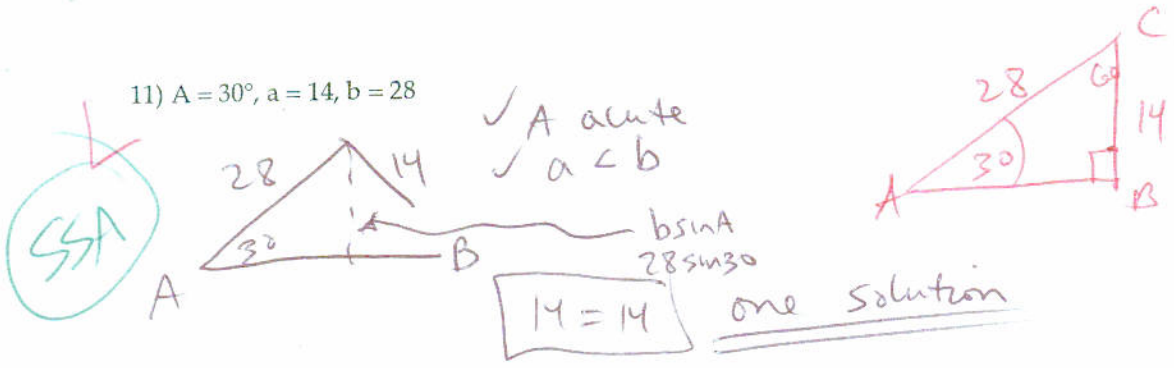
ASS



✓ B obtuse
✓ b < a
→ no solution

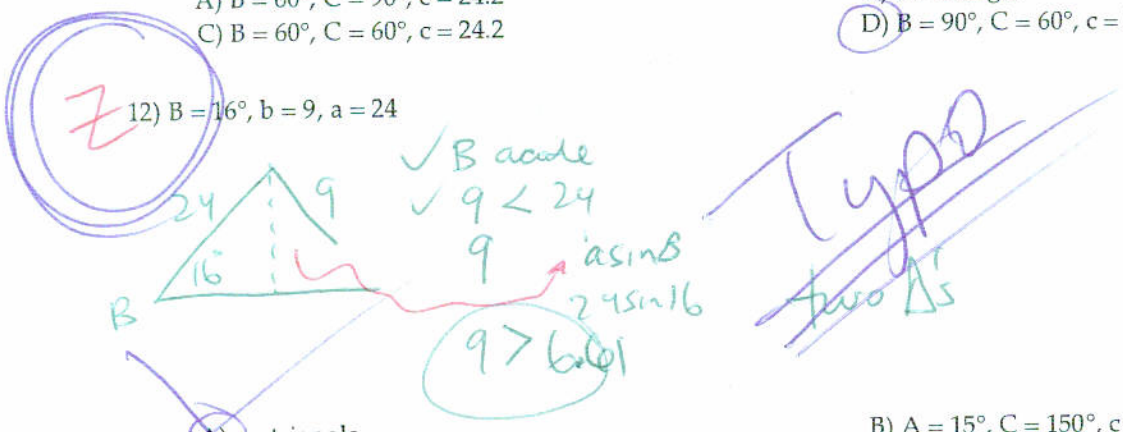
A) no triangle
B) A = 54°, C = 15°, c = 31
C) A = 55°, C = 15°, c = 29
D) A = 56°, C = 15°, c = 33

11) A = 30°, a = 14, b = 28



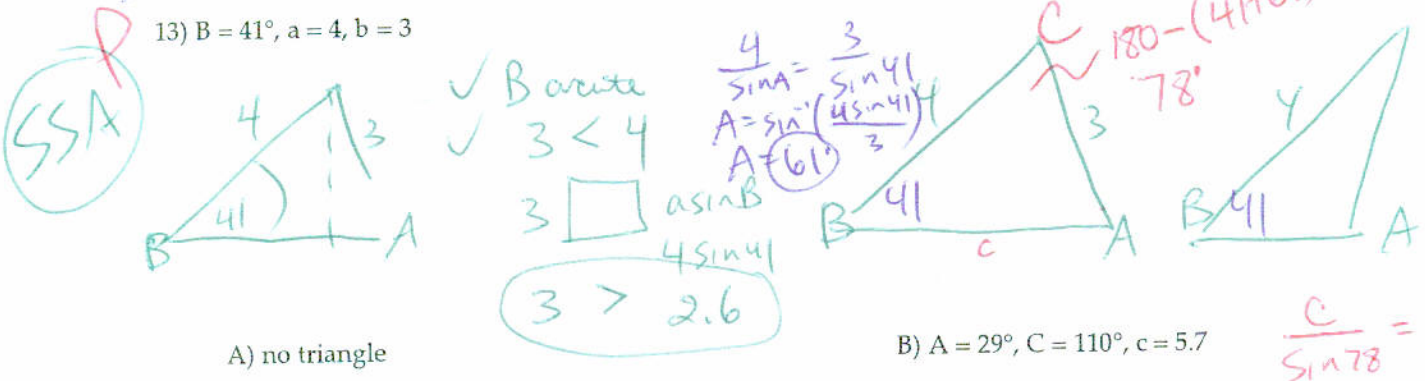
A) B = 60°, C = 90°, c = 24.2
B) no triangle
C) B = 60°, C = 60°, c = 24.2
D) B = 90°, C = 60°, c = 24.2

12) B = 16°, b = 9, a = 24



A) no triangle
B) A = 15°, C = 150°, c = 34.5
C) A = 12°, C = 151°, c = 30
D) A = 14°, C = 149°, c = 33

13) B = 41°, a = 4, b = 3



A) no triangle
B) A = 29°, C = 110°, c = 5.7
C) $A_1 = 61°, C_1 = 78°, c_1 = 4.5$;
$A_2 = 119°, C_2 = 20°, c_2 = 1.6$
D) $A_1 = 61°, C_1 = 78°, c_1 = 0.1$;
$A_2 = 119°, C_2 = 20°, c_2 = 0.1$

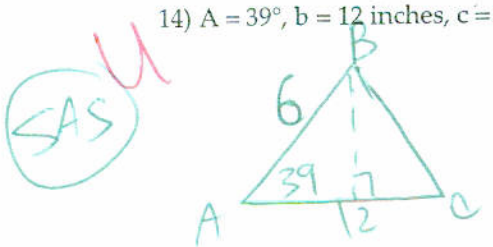
$\frac{c}{\sin 78} = \frac{3}{\sin 41}$

$c = \frac{3\sin 78}{\sin 41}$

$c = 4.47$

Find the area of the triangle having the given measurements. Round to the nearest square unit.

14) A = 39°, b = 12 inches, c = 6 inches



$\text{Area} = \frac{1}{2}(12)(6)\sin 39$

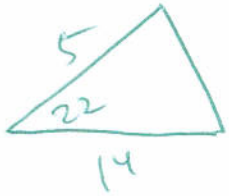
$\text{Area} = 22.65$

A) 28 square inches
B) 21 square inches
C) 23 square inches
D) 30 square inches

15) A = 22°, b = 14 meters, c = 5 meters

AA

SAS



Area = $\frac{1}{2}$ 14(5) sin 22

Area = 13.1

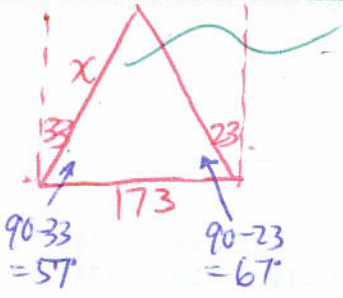
A) 13 square meters B) 28 square meters C) 26 square meters D) 7 square meters

Solve the problem.

C

16) Two tracking stations are on the equator 173 miles apart. A weather balloon is located on a bearing of N33°E from the western station and on a bearing of N23°W from the eastern station. How far is the balloon from the western station? Round to the nearest mile.

ASA



180 − (57 + 67) = 56°

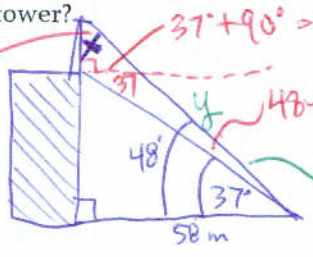
$\frac{173}{\sin 56} = \frac{x}{\sin 67}$

X = 192 mi

A) 201 miles B) 175 miles C) 166 miles D) 192 miles

W

17) A surveyor standing 58 meters from the base of a building measures the angle to the top of the building and finds it to be 37°. The surveyor then measures the angle to the top of the radio tower on the building and finds that it is 48°. How tall is the radio tower?



180 − (127 + 11) = 42°

37° + 90° = 127°

48 − 37 = 11°

$\frac{x}{\sin 11} = \frac{86.7}{\sin 127}$

X = 20.71

$\cos 48 = \frac{58}{y}$

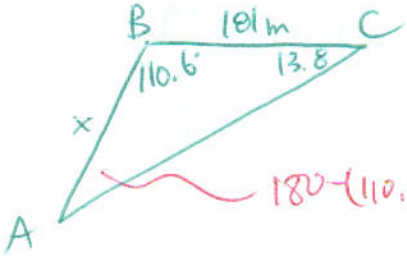
$y = \frac{58}{\cos 48} = 86.7$ m

A) 11.27 meters B) 8.2 meters C) 20.71 meters D) 7.51 meters

I

18) To find the distance AB across a river, a distance BC of 181 m is laid off on one side of the river. It is found that B = 110.6° and C = 13.8°. Find AB. Round to the nearest meter.

ASA



$\frac{181}{\sin 55.6} = \frac{x}{\sin 13.8}$

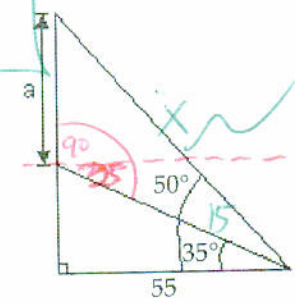
X = 52.3

180 − (110.6 + 13.8) = 55.6°

A) 52 meters B) 40 meters C) 43 meters D) 55 meters

Find a. If necessary, round your answer to the nearest hundredth.

19)



$\cos 50 = \frac{55}{x}$

$x = \frac{55}{\cos 50} = 85.6$

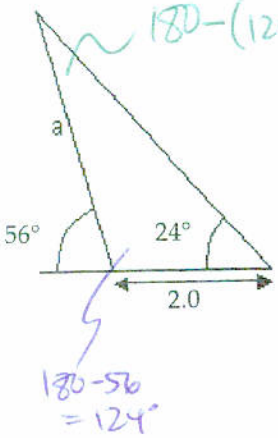
$\frac{a}{\sin 15} = \frac{85.6}{\sin(90+35)}$

$a = 27.03$

A) 9.7 B) 14.74 C) 10.59 D) 27.03

20)

ASA



$180-(124+24) = 32$

$\frac{2}{\sin 32} = \frac{a}{\sin 24}$

$a = 1.54$

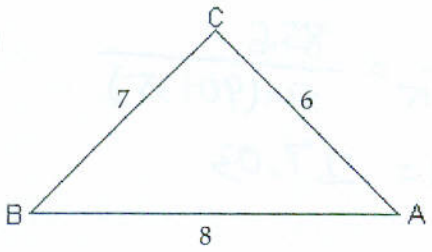
$180-56 = 124°$

A) 0.98 B) 3.13 C) 4.08 D) 1.54

Solve the triangle. Round lengths to the nearest tenth and angle measures to the nearest degree.

21)

SSS



$B = \cos^{-1}\left(\frac{6^2-7^2-8^2}{-2(7)(8)}\right)$

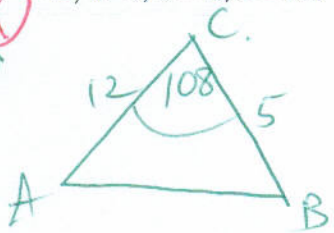
$B = 46.6°$

A) A = 58°, B = 47°, C = 75°
B) A = 47°, B = 75°, C = 58°
C) A = 58°, B = 75°, C = 47°
D) A = 47°, B = 58°, C = 75°

22) a = 5, b = 12, C = 108°

B

SAS



$c = \sqrt{5^2 + 12^2 - 2(5)(12)\cos 108}$

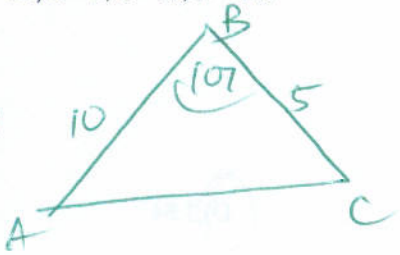
$c = 14.4$

A) c = 17.3, A = 21°, B = 51°
B) c = 20.2, A = 17°, B = 55°
C) c = 14.4, A = 19°, B = 53°
D) no triangle

23) a = 5, c = 10, B = 107°

H

SAS



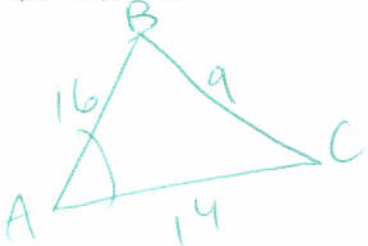
$b = \sqrt{5^2 + 10^2 - 2(5)(10)\cos 107}$

$b = 12.4$

A) b = 18.2, A = 21°, C = 52°
B) b = 15.3, A = 25°, C = 48°
C) b = 12.4, A = 23°, C = 50°
D) no triangle

24) a = 9, b = 14, c = 16

BB
SSS



$A = \cos^{-1}\left(\frac{9^2 - 14^2 - 16^2}{-2(14)(16)}\right)$

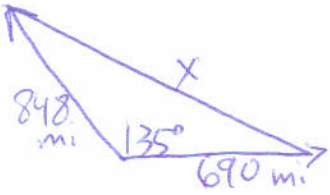
$A = 34.1°$

A) A = 34°, B = 60°, C = 86°
B) A = 32°, B = 60°, C = 88°
C) A = 36°, B = 58°, C = 86°
D) no triangle

Solve the problem.

R
SAS

25) Two airplanes leave an airport at the same time, one going northwest (bearing 135°) at 424 mph and the other going east at 345 mph. How far apart are the planes after 2 hours (to the nearest mile)?



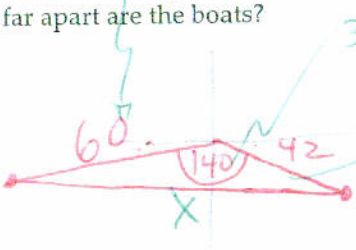
$X = \sqrt{848^2 + 690^2 - 2(848)(690)\cos 135°}$

$X = 1422.2$

A) 1184 miles
B) 711 miles
C) 1422 miles
D) 1268 miles

M
SAS

26) Two sailboats leave a harbor in the Bahamas at the same time. The first sails at 21 mph in a direction 330°. The second sails at 30 mph in a direction 190°. Assuming that both boats maintain speed and heading, after 2 hours, how far apart are the boats?



$X = \sqrt{(60^2 + 42^2 - 2(60)(42)\cos 140}$

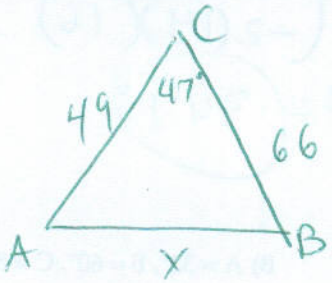
$X = 96.0$

A) 75.2 miles
B) 96 miles
C) 80.9 miles
D) 72.1 miles

X

27) Two points A and B are on opposite sides of a building. A surveyor selects a third point C to place a transit Point C is 49 feet from point A and 66 feet from point B. The angle ACB is 47°. How far apart are points A and B?

SAS



$x = \sqrt{49^2 + 66^2 - 2(49)(66)\cos 47}$

$x = 48.4$ ft

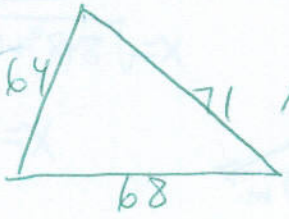
A) 48.4 feet B) 105.7 feet C) 94.7 feet D) 67.5 feet

D

28) A painter needs to cover a triangular region 64 meters by 68 meters by 71 meters. A can of paint covers 70 square meters. How many cans will be needed?

SSS

Heron's Formula



$s = \frac{1}{2}(64+68+71) = 101.5$

$\text{Area} = \sqrt{101.5(101.5-64)(101.5-68)(101.5-71)}$

$A = 1972.1\ m^2 \cdot \frac{1\ can}{70\ m^2}$

$= 28.1$

A) 3 cans B) 29 cans C) 321 cans D) 15 cans

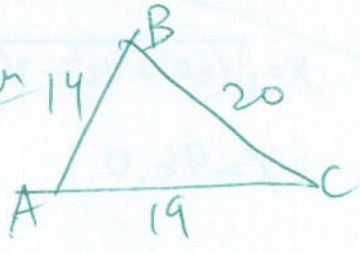
Use Heron's formula to find the area of the triangle. Round to the nearest square unit.

29) a = 20 yards, b = 19 yards, c = 14 yards

DD

SSS

Heron's Formula



$s = \frac{1}{2}(14+19+20) = 26.5$

$\text{Area} = \sqrt{26.5(6.5)(7.5)(12.5)}$

$= 127.1$

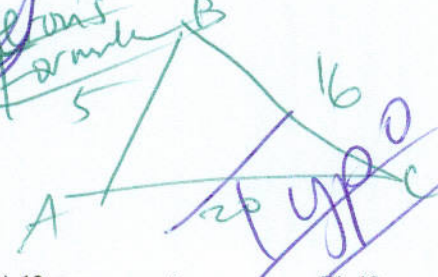
A) 130 square yards B) 127 square yards C) 136 square yards D) 133 square yards

D

30) a = 16 meters, b = 20 meters, c = 5 meters

SSS

Heron's Formula



$s = \frac{1}{2}(5+16+20) = 20.5$

$\text{Area} = \sqrt{20.5(15.5)(4.5)(0.5)}$

$= 26.7\ m^2$

Typo

A) 12 square meters B) 48 square meters C) 23 square meters D) 46 square meters

Pick the closest one