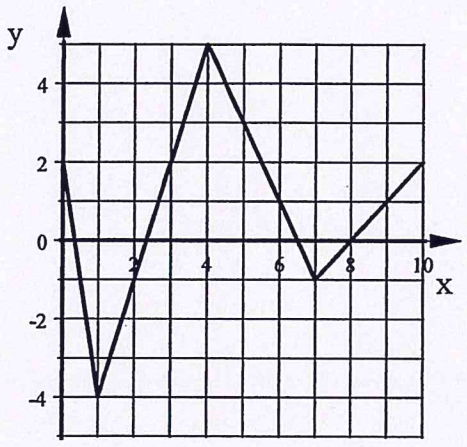
Bellwork Alg 2 Monday, March 18, 2019

1. The pilot of a plane sees the end of the runway with an angle of depression of $38°$ the moment the plane is directly over a football stadium. If the stadium is 2 miles (1mi = 5280 ft) from the end of the runway, find the plane's altitude, in feet, at this moment.

2. The function $f(x)$ is created by repeating the pattern below. Use this pattern to answer the following questions.



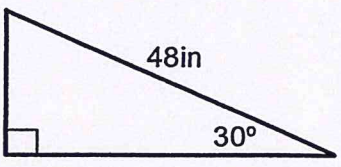
a) Find $f(7)$

b) Find x when $f(x) = 5$

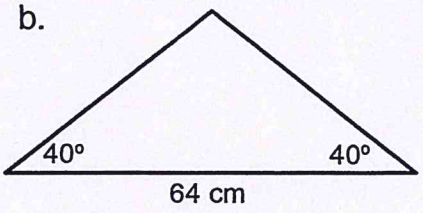
c) Find $f(11)$

3. Find the area of each triangle. Round to the nearest tenth where necessary.

a.



b.



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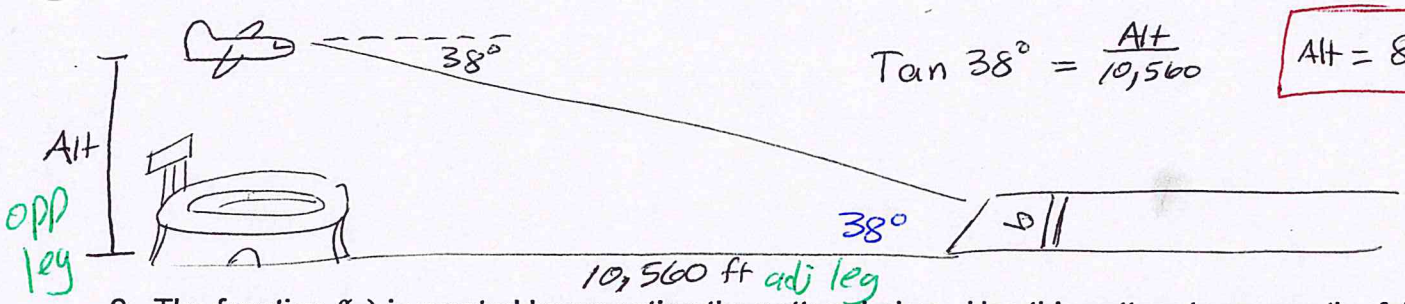
ANSWERS

1. The pilot of a plane sees the end of the runway with an angle of depression of 38° the moment the plane is directly over a football stadium. If the stadium is 2 miles (1mi = 5280 ft) from the end of the runway, find the plane's altitude, in feet, at this moment.

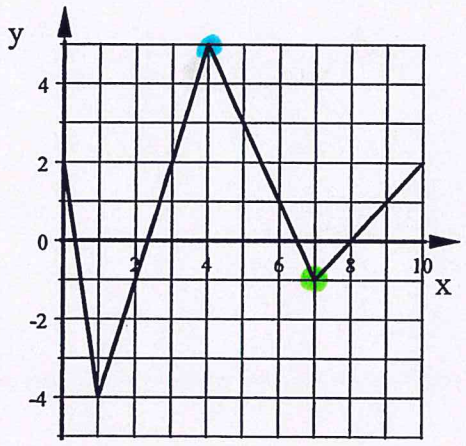
SOHCAHTOA



$\tan 38^\circ = \frac{Alt}{10{,}560}$

Alt = 8250 ft

2. The function $f(x)$ is created by repeating the pattern below. Use this pattern to answer the following questions.



a) Find $f(7)$

when $x = 7$

$y = -1$

$f(7) = -1$

b) Find x when $f(x) = 5$

$y = 5$ when $x = 4$

$f(x) = 5$ when $x = 4$

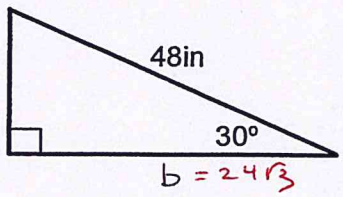
c) Find $f(11)$

given this graph repeats every 10 units, $f(11)$ will be the same as $f(1)$

$f(11) = f(1) = -4$

3. Find the area of each triangle. Round to the nearest tenth where necessary.

a.



24 = h

$b = 24\sqrt{3}$

THIS IS a 30-60-90 Δ.

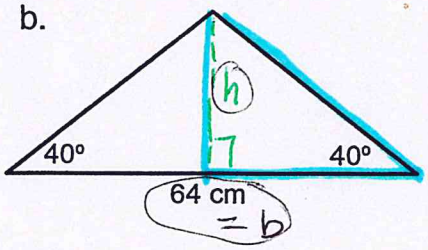
$h = SL \longrightarrow SL = 48/2 = 24$

$b = LL \longrightarrow LL = \sqrt{3} \cdot SL = 24\sqrt{3}$

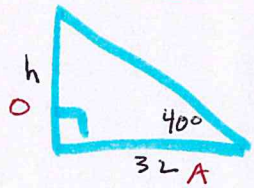
$A = \frac{1}{2}bh = \frac{1}{2}(24\sqrt{3})(24)$

$A = 498.8\ in^2$

b.



SOHCAHTOA



A

$\tan 40^\circ = \frac{h}{32}$

$h = 26.9$

$A = \frac{1}{2}bh$

$= \frac{1}{2}(64)(26.9)$

$A = 860.8\ cm^2$