Daily Check #14

① In $\triangle ABC$, $a=4$, $b=5$, $C=58^\circ$
Find c.

② In $\triangle DEF$, $d=2$, $e=3$, $f=4$
Find D.

Oct 9-8:32 AM

Day 41 – Law of Sines

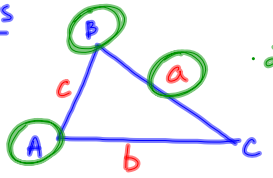
Review- Law of cosines
1. SSS - all lowercase letters
2. SAS - all letters different
2 lower, 1 upper

at least 2 sides given
$\Rightarrow$ Law of cosines

Oct 9-8:56 AM

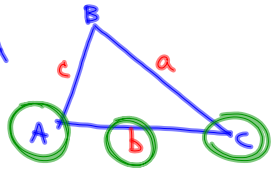
Law of sines

① AAS



· 2 letters that are the same

② ASA



2 angles are given $\Rightarrow$ law of sines

Oct 9-8:58 AM

Law of sines

$$\underbrace{\frac{\sin A}{a} = \frac{\sin B}{b}} = \frac{\sin C}{c}$$

- Proportion
- Cross multiply

Oct 9-9:03 AM

Ex 1: In $\triangle ABC$, $B=64^\circ$, $C=38^\circ$, $b=9$ ft
Solve the triangle.

$A=$ 78° $\quad a=$ 9.79 ft
$B=$ 64° $\quad b=$ 9 ft
$C=$ 38° $\quad c=$ 6.16 ft

A: 180
− 64
− 38
78°

$$\frac{\sin 78^\circ}{a} = \frac{\sin 64^\circ}{9}$$
$$\frac{9\sin 78^\circ}{\sin 64^\circ} = \frac{a\sin 64^\circ}{\sin 64^\circ}$$
$$9.79 = a$$

$$\frac{\sin 38^\circ}{c} = \frac{\sin 64^\circ}{9}$$
$$\frac{9\sin 38^\circ}{\sin 64^\circ} = \frac{c\sin 64^\circ}{\sin 64^\circ}$$
$$6.16 = c$$

Oct 9-9:05 AM

Ex 2: In $\triangle ABC$, $a=8$ in, $B=64^\circ$, $C=38^\circ$
Solve the triangle.

$A=$ 78° $\quad a=$ 8 in
$B=$ 64° $\quad b=$ 7.35 in
$C=$ 38° $\quad c=$ 5.03 in

$$\frac{\sin 78}{8} = \frac{\sin 64}{b}$$
$$\frac{b\sin 78}{\sin 78} = \frac{8\sin 64}{\sin 78}$$
$$b = 7.35$$

$$\frac{\sin 78}{8} = \frac{\sin 38}{c}$$
$$\frac{c\sin 78}{\sin 78} = \frac{8\sin 38}{\sin 78}$$
$$c = 5.034$$

Oct 9-9:15 AM