College Algebra

Name: Key

Unit 4 Lt 1-3 Quiz Review

Date: _____ Period: _____

Solve each Triangle

Find all missing sides and angles. If necessary, round your answers to the nearest tenth. hundredths

1) $B = 32.5°$ $C = 90°$ $a = 6.7$

$\tan 32.5 = \frac{b}{6.7}$

$b = 4.27$

$6.7^2 + 4.27^2 = c^2$

$63.1229 = c^2$

$7.94 = c$

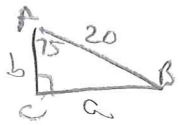
$\cos 32.5 = \frac{6.7}{c}$

$c = \frac{6.7}{\cos 32.5}$

$c = 7.94$

$\angle A = 57.5°$
$b = 4.27$
$c = 7.94$

2) $A = 75°$ $C = 90°$ $c = 20$



$\sin 75 = \frac{a}{20}$

$a = 19.32$

$19.32^2 + b^2 = 20^2$

$b^2 = 26.7376$

$b = 5.17$

$\cos 75 = \frac{b}{20}$

$b = 5.18$

$a^2 + 5.18^2 = 20^2$

$a^2 = 373.1676$

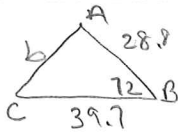
$a = 19.32$

$\angle B = 15°$

$a = 19.32$

$b = 5.17$ (8)

3) $B = 72°$ $a = 39.7$ $c = 28.8$ SAS



$b^2 = 39.7^2 + 28.8^2 - 2(39.7)(28.8)\cos 72$

$b^2 = 1698.894659$

$b = 41.22$

$\frac{41.22}{\sin 72} = \frac{28.8}{\sin C}$

$\sin C = .66449\ldots$

$C = 41.64°$

$\angle A = 66.36°$
$\angle C = 41.64°$
$b = 41.22$

4) $C = 90°$ $a = 15$ $b = 20$

$15^2 + 20^2 = c^2$

$625 = c^2$

$25 = c$

$\tan A = \frac{15}{20}$

$A = 36.87$

$\tan B = \frac{20}{15}$

$B = 53.13$

$\angle A = 36.87°$
$\angle B = 53.13°$
$C = 25$

5) $a = 11.6 \quad b = 15.2 \quad c = 7.4$ (2nd) SSS (1st)

$7.4^2 = 11.6^2 + 15.2^2 - 2(11.6)(15.2)\cos C$

$54.76 = 365.6 - 352.64\cos C$

$-310.84 = -352.64\cos C$

$.88146... = \cos C$

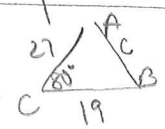
$28.18^\circ = C$

$\frac{7.4}{\sin 28.18} = \frac{11.6}{\sin A}$

$\sin A = .74027...$

$A = 47.75$

$\angle A = 47.75^\circ$
$\angle B = 104.07^\circ$
$\angle C = 28.18^\circ$



7) $a = 19 \quad b = 27 \quad C = 80^\circ$ SAS

$c^2 = 19^2 + 27^2 - 2(19)(27)\cos 80^\circ$

$c^2 = 911.836...$

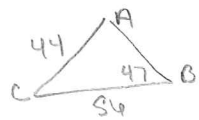
$c = 30.194$
30.20

$\frac{30.2}{\sin 80} = \frac{27}{\sin B}$

$\sin B = .88045...$

$B = 61.697$
61.70°

$\angle A = 38.30^\circ$
$\angle B = 61.70^\circ$
$C = 30.20$



ASS!

6) $B = 47^\circ \quad a = 56 \quad b = 44$

$\frac{44}{\sin 47} = \frac{56}{\sin A}$

$\sin A = .9308...$

$\angle A = 68.56^\circ$
$\angle C = 64.44^\circ$

$\angle A_2 = 111.44^\circ$
$\angle C_2 = 21.56^\circ$

$\frac{44}{\sin 47} = \frac{C}{\sin 64.44}$

$C = 54.27$

$\frac{44}{\sin 47} = \frac{C_2}{\sin 21.56}$

$C_2 = 22.11$

8) $a = 7 \quad b = 28 \quad B = 75^\circ$ ASS

$\frac{28}{\sin 75} = \frac{7}{\sin A}$

$\sin A = .2414...$

$\angle A = 13.97^\circ$
$\angle C = 91.03^\circ$

$A_2 = 166.03^\circ$
$C_2 = -61.03$

$\frac{28}{\sin 75} = \frac{C}{\sin 91.03}$

$C = 28.98$