Name: Key

Special Right Triangles and Trig Ratios HW

1. Simplify the fractions, make sure there are no radicals in the denominator.

$\frac{7\sqrt{3}}{21}$ $\quad \frac{15\sqrt{2} \div 15}{45 \div 15}$ $\quad \frac{45 \div 5}{5\sqrt{3} \div 5}$ $\quad \frac{8 \div 8}{64\sqrt{2} \div 8}$ $\quad \frac{21\sqrt{3} \div 21}{21 \div 21}$

$\frac{7\sqrt{3} \div 7}{21 \div 7}$ $\boxed{\frac{\sqrt{3}}{3}}$

$\boxed{\frac{\sqrt{2}}{3}}$

$\frac{9}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}}$ $\quad \frac{9\sqrt{3}}{\sqrt{9}} = \frac{9\sqrt{3}}{3}$ $\quad \boxed{= 3\sqrt{3}}$

$\frac{1}{8\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{\sqrt{2}}{8 \cdot \sqrt{4}}$ $\quad \frac{\sqrt{2}}{8 \cdot 2} = \boxed{\frac{\sqrt{2}}{16}}$

$\boxed{= \sqrt{3}}$

Directions: Graph the point, label the lengths of the right triangle with right angle C, find the length of the hypotenuse then find the exact trig ratio value. Simplify all radicals, simplify all fractions and make sure there is no radical in the denominator. must also show Ref ∠s in radians.

2. $(-2\sqrt{3}, 2)$

$2^2 + (-2\sqrt{3})^2 = h^2$

$4 + 4 \cdot 3 = h^2$

$16 = h^2$

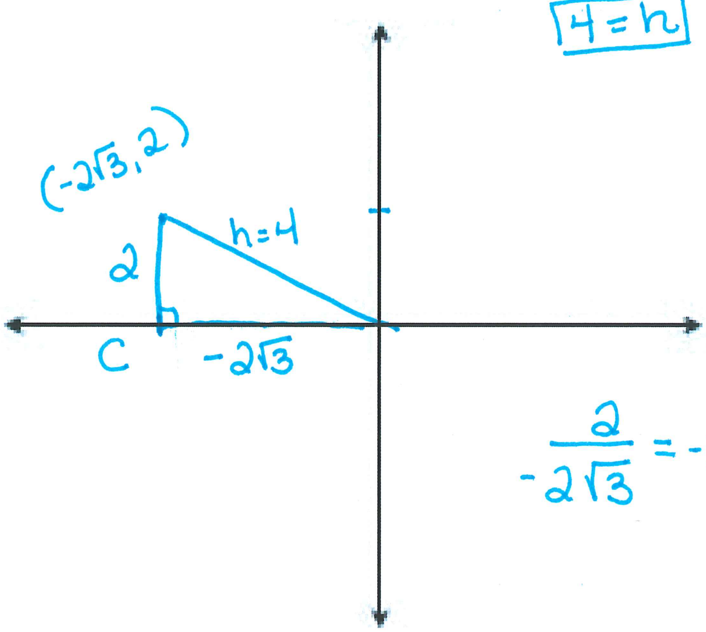
$\boxed{4 = h}$

$\theta' = \pi/6$

$\sin \theta' = \frac{1}{2}$

$\cos \theta' = \frac{-2\sqrt{3}}{4} = -\frac{\sqrt{3}}{2}$

$\tan \theta' = \frac{2}{-2\sqrt{3}} = -\frac{\sqrt{3}}{3}$



$\frac{2}{-2\sqrt{3}} = -\frac{1}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = -\frac{\sqrt{3}}{\sqrt{9}} = -\frac{\sqrt{3}}{3}$

3. $(3, -3)$

$3^2 + (-3)^2 = h^2$

$9 + 9 = h^2$

$\sqrt{18} = \sqrt{h^2}$

$3 \cdot \sqrt{9} \cdot \sqrt{2}$ $\quad h = 3\sqrt{2}$

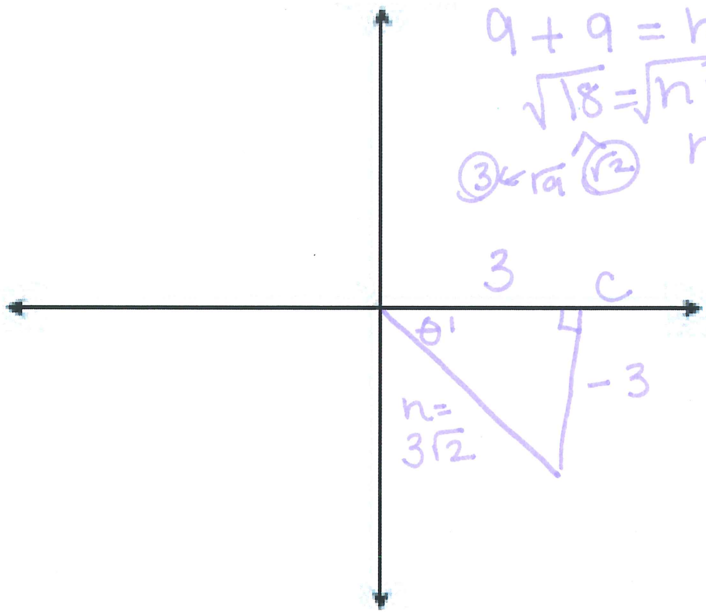
$\theta' = \pi/4$

$\sin \theta' = \frac{-3}{3\sqrt{2}} = -\frac{\sqrt{2}}{2}$

$\frac{-3}{3\sqrt{2}} = \frac{-1}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = -\frac{\sqrt{2}}{2}$

$\cos \theta' = \frac{3}{3\sqrt{2}} = \frac{\sqrt{2}}{2}$

$\tan \theta' = \frac{-3}{3} = -1$



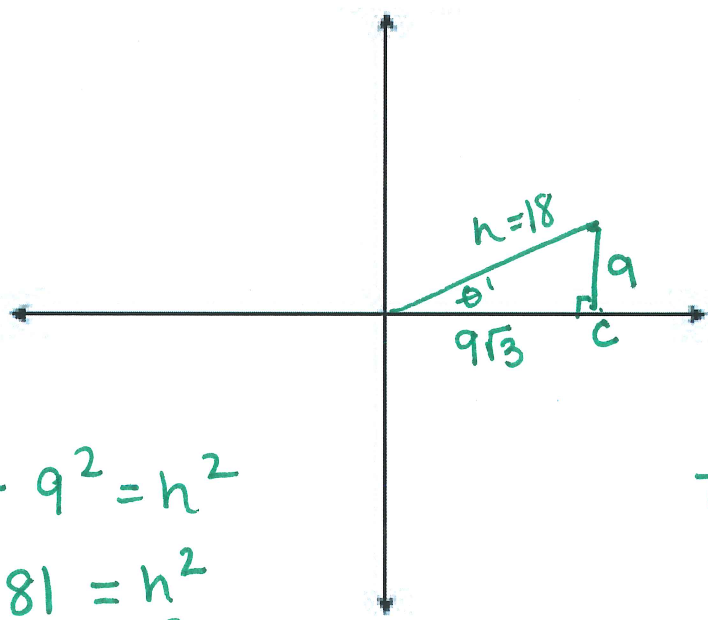
3. $(9\sqrt{3}, 9)$

$\theta' = \frac{\pi}{6}$

$\sin \theta' = \frac{9}{18} = \frac{1}{2}$

$\cos \theta' = \frac{9\sqrt{3}}{18} = \frac{\sqrt{3}}{2}$

$\tan \theta' = \frac{9}{9\sqrt{3}} = \frac{\sqrt{3}}{3}$



$(9\sqrt{3})^2 + 9^2 = h^2$

$81 \cdot 3 + 81 = h^2$

$243 + 81 = h^2$

$324 = h^2$

$\boxed{18 = h}$

$\frac{9}{9\sqrt{3}} = \frac{1}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{\sqrt{3}}{\sqrt{9}} =$

$\frac{\sqrt{3}}{3}$

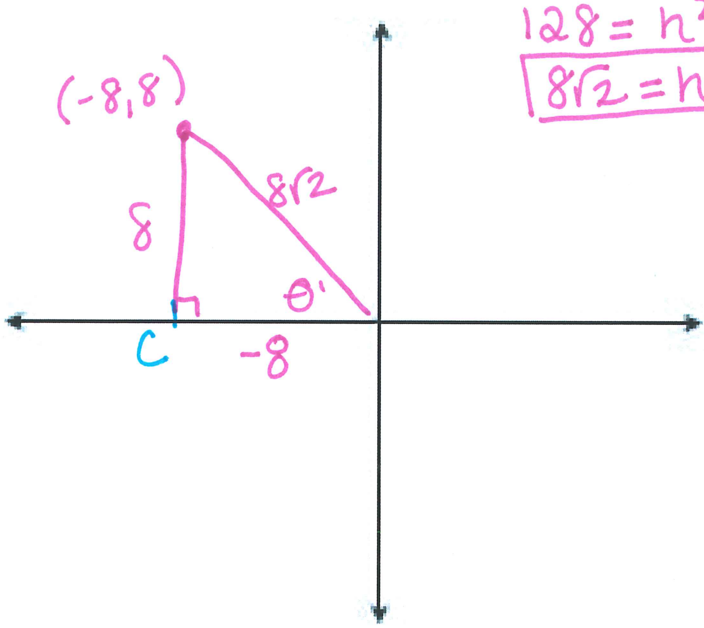
4. $(-8,8)$

$8^2+8^2=h^2$

$64+64=h^2$

$128=h^2$

$\boxed{8\sqrt{2}=h}$



$\theta' = \underline{\pi/4}$

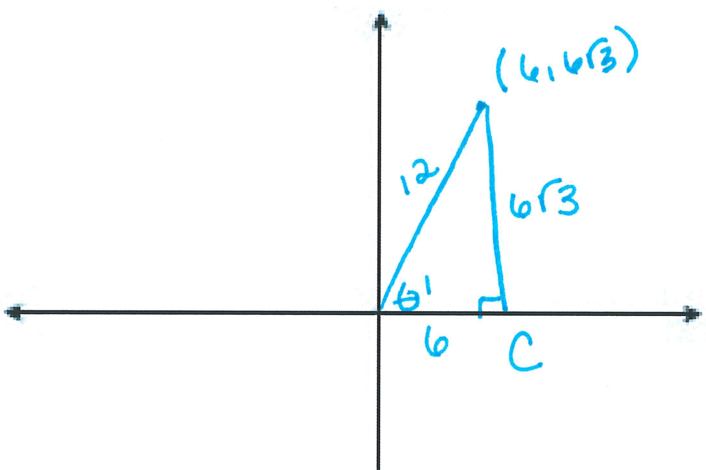
$\sin\theta' = \underline{\dfrac{8}{8\sqrt{2}} = \dfrac{\sqrt{2}}{2}}$

$\dfrac{8}{8\sqrt{2}} = \dfrac{1}{\sqrt{2}} \cdot \dfrac{\sqrt{2}}{\sqrt{2}} = \dfrac{\sqrt{2}}{\sqrt{4}} = \dfrac{\sqrt{2}}{2}$

$\cos\theta' = \underline{\dfrac{-8}{8\sqrt{2}} = -\dfrac{\sqrt{2}}{2}}$

$\tan\theta' = \underline{\dfrac{8}{-8} = -1}$

5. $(6,6\sqrt{3})$



$6^2+(6\sqrt{3})^3=h^2$

$36+36\cdot 3=h^2$

$36+108=h^2$

$144=h^2$

$12=h$

$\theta' = \underline{\dfrac{\pi}{3}}$

$\sin\theta' = \underline{\dfrac{6\sqrt{3}}{12} = \dfrac{\sqrt{3}}{2}}$

$\cos\theta' = \underline{\dfrac{6}{12} = \dfrac{1}{2}}$

$\tan\theta' = \underline{\dfrac{6\sqrt{3}}{6} = \sqrt{3}}$