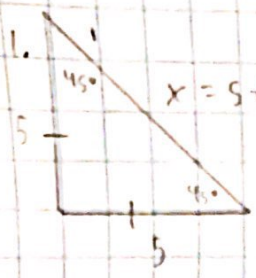
David Lim
per 2
9/2/2020

#7: Quick Review #1-4 · Exercises #1-17 odd

1.



$x = 5\sqrt{2}$

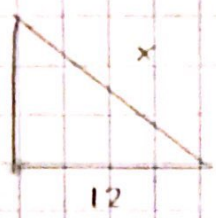
$x = \sqrt{5^2 + 5^2}$

$x = \sqrt{25 + 25}$

$x = \sqrt{50}$

$\boxed{x = 5\sqrt{2}}$

2.



$x = \sqrt{8^2 + 12^2}$

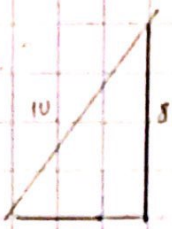
$x = \sqrt{64 + 144}$

$x = \sqrt{208}$

$x = \sqrt{16} \cdot \sqrt{13}$

$\boxed{x = 4\sqrt{13}}$

3.



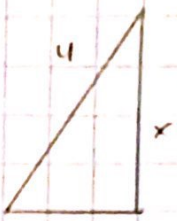
$x = \sqrt{10^2 - 8^2}$

$x = \sqrt{100 - 64}$

$x = \sqrt{36}$

$\boxed{x = 6}$

4.



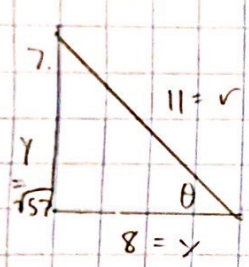
$x = \sqrt{4^2 - 2^2}$

$x = \sqrt{16 - 4}$

$x = \sqrt{12}$

$\boxed{x = 2\sqrt{3}}$

7.



$y = \sqrt{11^2 - 8^2}$

$y = \sqrt{121 - 64}$

$y = \sqrt{57}$

$\sin\theta = \frac{y}{r} = \boxed{\frac{\sqrt{57}}{11}}$ $\quad \csc\theta = \frac{r}{y} = \frac{11}{\sqrt{57}} \cdot \frac{\sqrt{57}}{\sqrt{57}} = \boxed{\frac{11\sqrt{57}}{57}}$

$\cos\theta = \frac{x}{r} = \boxed{\frac{8}{11}}$ $\quad \sec\theta = \frac{r}{x} = \boxed{\frac{11}{8}}$

$\tan\theta = \frac{y}{x} = \boxed{\frac{\sqrt{57}}{8}}$ $\quad \cot\theta = \frac{x}{y} = \frac{8}{\sqrt{57}} \cdot \frac{\sqrt{57}}{\sqrt{57}} = \boxed{\frac{8\sqrt{57}}{57}}$

9. $\sin\theta = \frac{3}{7} = \frac{y}{r}$

$x = \sqrt{7^2 - 3^2}$

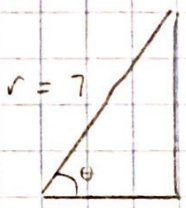
$x = \sqrt{49 - 9}$

$x = \sqrt{40} = 2\sqrt{10}$

$\cos\theta = \frac{x}{r} = \boxed{\frac{2\sqrt{10}}{7}}$ $\quad \sec\theta = \frac{r}{x} = \frac{7}{2\sqrt{10}} = \boxed{\frac{7\sqrt{10}}{20}}$

$\tan\theta = \frac{y}{x} = \boxed{\frac{3}{2\sqrt{10}}}$ $\quad \cot\theta = \frac{x}{y} = \boxed{\frac{2\sqrt{10}}{3}}$

$\csc\theta = \frac{r}{y} = \boxed{\frac{7}{3}}$



11. $\cos\theta = \frac{5}{11} = \frac{x}{r}$

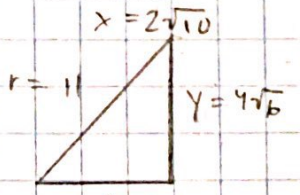
$y = \sqrt{11^2 - 5^2}$

$y = \sqrt{121 - 25}$

$y = 4\sqrt{6}$

$\sin\theta = \boxed{\frac{4\sqrt{6}}{11}}$ $\quad \csc\theta = \frac{11}{4\sqrt{6}} = \boxed{\frac{11\sqrt{6}}{24}}$ $\quad \cot\theta = \frac{5}{4\sqrt{6}} = \boxed{\frac{5\sqrt{6}}{24}}$

$\tan\theta = \boxed{\frac{4\sqrt{6}}{5}}$ $\quad \sec\theta = \boxed{\frac{11}{5}}$



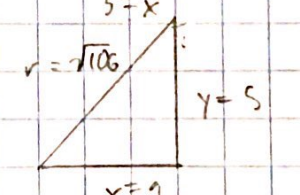
13. $\tan\theta = \frac{5}{9} = \frac{y}{x}$

$r = \sqrt{25 + 81}$

$r = \sqrt{106}$

$\sin\theta = \frac{5}{\sqrt{106}} = \boxed{\frac{5\sqrt{106}}{106}}$ $\quad \csc\theta = \boxed{\frac{\sqrt{106}}{5}}$ $\quad \cot\theta = \boxed{\frac{9}{5}}$

$\cos\theta = \frac{9}{\sqrt{106}} = \boxed{\frac{9\sqrt{106}}{106}}$ $\quad \sec\theta = \boxed{\frac{\sqrt{106}}{9}}$



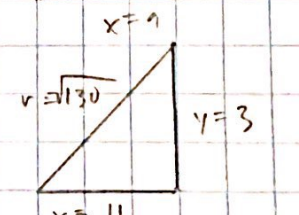
15. $\cot\theta = \frac{11}{3} = \frac{x}{y}$

$r = \sqrt{121 + 9}$

$r = \sqrt{130}$

$\sin\theta = \frac{3}{\sqrt{130}} = \boxed{\frac{3\sqrt{130}}{130}}$ $\quad \tan\theta = \boxed{\frac{3}{11}}$ $\quad \sec\theta = \boxed{\frac{\sqrt{130}}{3}}$

$\cos\theta = \frac{11}{\sqrt{130}} = \boxed{\frac{11\sqrt{130}}{130}}$ $\quad \csc\theta = \boxed{\frac{\sqrt{130}}{3}}$



17. $\csc = \frac{23}{9} = \frac{r}{y}$

$x = \sqrt{23^2 - 9^2}$

$x = \sqrt{529 - 81}$

$x = \sqrt{448}$

$x = 8\sqrt{7}$

$\sin\theta = \frac{y}{r} = \boxed{\frac{9}{23}}$ $\quad \csc\theta = \frac{r}{y} = \boxed{\frac{23}{9}}$

$\cos\theta = \frac{x}{r} = \boxed{\frac{8\sqrt{7}}{23}}$ $\quad \sec = \frac{23}{8\sqrt{7}} = \frac{\sqrt{161}}{56} = \boxed{\frac{1}{2}}$

$\tan\theta = \frac{y}{x} = \boxed{\frac{9}{8\sqrt{7}}} \cdot \frac{\sqrt{7}}{\sqrt{7}} = \frac{9\sqrt{7}}{56}$ $\quad \cot\theta = \boxed{\frac{8\sqrt{7}}{9}}$