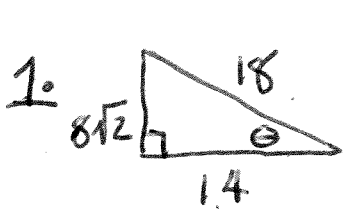


# 4.1 Right Angle Trg p. 227; #1-18



$$\sin \theta = \frac{8\sqrt{2}}{18} = \frac{4\sqrt{2}}{9}$$

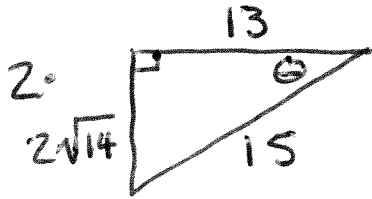
$$\csc \theta = \frac{9}{4\sqrt{2} \cdot \sqrt{2}} = \frac{9\sqrt{2}}{8}$$

$$\cos \theta = \frac{7}{9}$$

$$\sec \theta = \frac{9}{7}$$

$$\tan \theta = \frac{8\sqrt{2}}{14} = \frac{4\sqrt{2}}{7}$$

$$\cot \theta = \frac{7}{4\sqrt{2} \cdot \sqrt{2}} = \frac{7\sqrt{2}}{8}$$



$$\sin \theta = \frac{2\sqrt{14}}{15}$$

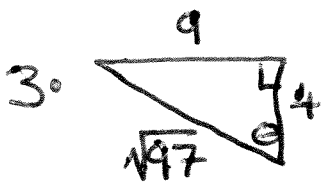
$$\csc \theta = \frac{15}{2\sqrt{14} \cdot \sqrt{14}} = \frac{15\sqrt{14}}{28}$$

$$\cos \theta = \frac{13}{15}$$

$$\sec \theta = \frac{15}{13}$$

$$\tan \theta = \frac{2\sqrt{14}}{13}$$

$$\cot \theta = \frac{13}{2\sqrt{14} \cdot \sqrt{14}} = \frac{13\sqrt{14}}{28}$$



$$\sin \theta = \frac{9}{\sqrt{97}} = \frac{9\sqrt{97}}{97}$$

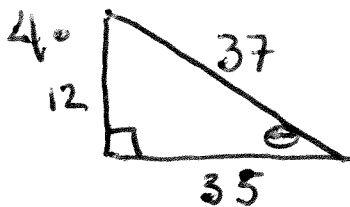
$$\csc \theta = \frac{\sqrt{97}}{9}$$

$$\cos \theta = \frac{4}{\sqrt{97}} = \frac{4\sqrt{97}}{97}$$

$$\sec \theta = \frac{\sqrt{97}}{4}$$

$$\tan \theta = \frac{9}{4}$$

$$\cot \theta = \frac{4}{9}$$



$$\sin \theta = \frac{12}{37}$$

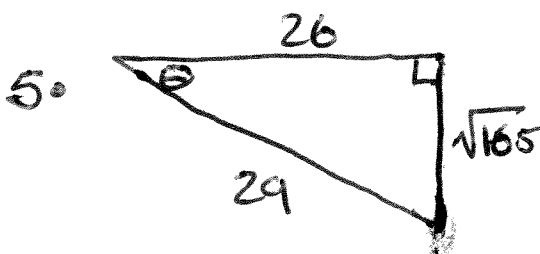
$$\csc \theta = \frac{37}{12}$$

$$\cos \theta = \frac{35}{37}$$

$$\sec \theta = \frac{37}{35}$$

$$\tan \theta = \frac{12}{35}$$

$$\cot \theta = \frac{35}{12}$$

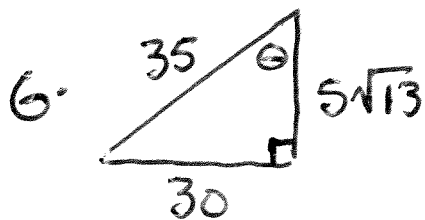


$$\sin \theta = \frac{\sqrt{165}}{29}$$

$$\csc \theta = \frac{29}{\sqrt{165}} \quad \cos \theta = \frac{26}{29}$$

$$\csc \theta = \frac{29\sqrt{165}}{165}$$

$$\cot \theta = \frac{26\sqrt{165}}{165} \quad \sec \theta = \frac{29}{26}$$



$$\sin \theta = \frac{30}{35} = \frac{6}{7}$$

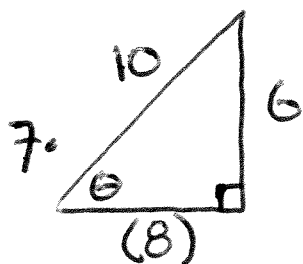
$$\csc \theta = \frac{7}{6}$$

$$\cos \theta = \frac{5\sqrt{13}}{35} = \frac{\sqrt{13}}{7}$$

$$\sec \theta = \frac{7}{\sqrt{13}} = \frac{7\sqrt{13}}{13}$$

$$\tan \theta = \frac{30}{5\sqrt{13}} = \frac{6}{\sqrt{13}} = \frac{6\sqrt{13}}{13}$$

$$\cot \theta = \frac{\sqrt{13}}{6}$$



$$\sin \theta = \frac{6}{10} = \frac{3}{5}$$

$$\csc \theta = \frac{5}{3}$$

$$\cos \theta = \frac{8}{10} = \frac{4}{5}$$

$$\sec \theta = \frac{5}{4}$$

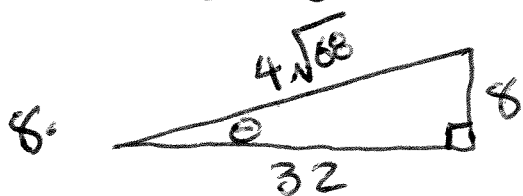
$$10^2 = 6^2 + a^2$$

$$100 - 36 = a^2 = 64$$

$$a = 8$$

$$\tan \theta = \frac{6}{8} = \frac{3}{4}$$

$$\cot \theta = \frac{4}{3}$$



$$\sin \theta = \frac{8}{4\sqrt{68}} = \frac{2}{\sqrt{68}} = \frac{2\sqrt{68}}{68}$$

$$\csc \theta = \frac{\sqrt{68}}{2}$$

$$\cos \theta = \frac{32}{4\sqrt{68}} = \frac{8}{\sqrt{68}} = \frac{8\sqrt{68}}{68}$$

$$\sec \theta = \frac{\sqrt{68}}{8}$$

$$32^2 + 8^2 = c^2$$

$$1024 + 64 = 1088 = 4\sqrt{68}$$

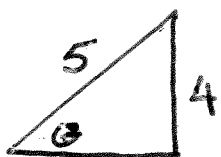
$$4 \cdot 272$$

$$4 \cdot 4 \cdot 68$$

$$\tan \theta = \frac{8}{32} = \frac{1}{4}$$

$$\cot \theta = 4$$

9.  $\sin \theta = \frac{4}{5}$



(3)

$$a^2 + 4^2 = 5^2$$

$$a^2 + 16 = 25$$

$$a^2 = 9$$

$$a = 3$$

$$\sin \theta = \frac{4}{5}$$

$$\csc \theta = \frac{5}{4}$$

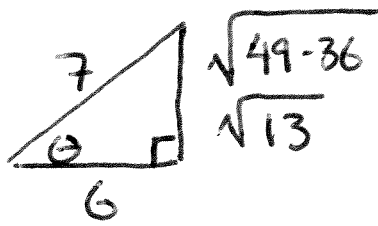
$$\cos \theta = \frac{3}{5}$$

$$\sec \theta = \frac{5}{3}$$

$$\tan \theta = \frac{4}{3}$$

$$\cot \theta = \frac{3}{4}$$

• 10)  $\cos \theta = \frac{6}{7}$



$$\sin \theta = \frac{\sqrt{13}}{7}$$

$$\csc \theta = \frac{7 \cdot \sqrt{13}}{\sqrt{13} \cdot \sqrt{13}} = \frac{7\sqrt{13}}{13}$$

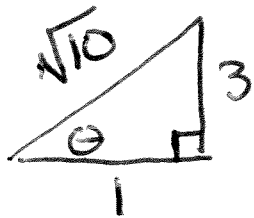
$$\cos \theta = \frac{6}{7}$$

$$\sec \theta = \frac{7}{6}$$

$$\tan \theta = \frac{\sqrt{13}}{6}$$

$$\cot \theta = \frac{6 \cdot \sqrt{13}}{\sqrt{13} \cdot \sqrt{13}} = \frac{6\sqrt{13}}{13}$$

• 11)  $\tan \theta = 3 = \frac{3}{1}$



$$3^2 + 1^2 = 10 = c^2$$

$$\sqrt{10} = c$$

$$\sin \theta = \frac{3 \cdot \sqrt{10}}{\sqrt{10} \cdot \sqrt{10}} = \frac{3\sqrt{10}}{10}$$

$$\csc \theta = \frac{\sqrt{10}}{3}$$

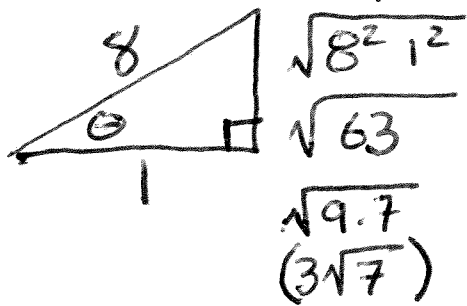
$$\cos \theta = \frac{1 \cdot \sqrt{10}}{\sqrt{10} \cdot \sqrt{10}} = \frac{\sqrt{10}}{10}$$

$$\sec \theta = \sqrt{10}$$

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

$$\cot \theta = \frac{1}{3}$$

• 12)  $\sec \theta = 8$



$$\sin \theta = \frac{3\sqrt{7}}{8}$$

$$\csc \theta = \frac{8 \cdot \sqrt{7}}{3\sqrt{7} \cdot \sqrt{7}} = \frac{8\sqrt{7}}{21}$$

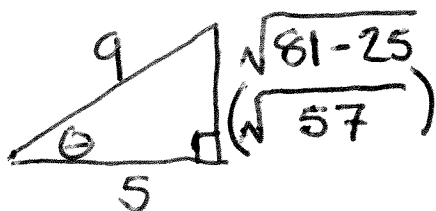
$$\cos \theta = \frac{1}{8}$$

$$\sec \theta = 8$$

$$\tan \theta = 3\sqrt{7}$$

$$\cot \theta = \frac{1 \cdot \sqrt{7}}{3\sqrt{7} \cdot \sqrt{7}} = \frac{\sqrt{7}}{21}$$

• 13)  $\cos \theta = \frac{5}{9}$



$$\sin \theta = \frac{\sqrt{57}}{9}$$

$$\csc \theta = \frac{9}{\sqrt{57}} = \frac{9\sqrt{57}}{57}$$

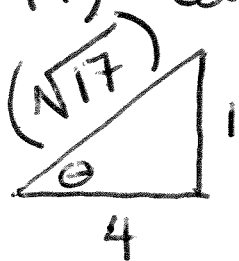
$$\cos \theta = \frac{5}{9}$$

$$\sec \theta = \frac{9}{5}$$

$$\tan \theta = \frac{\sqrt{57}}{5}$$

$$\cot \theta = \frac{5 \cdot \sqrt{57}}{\sqrt{57} \cdot \sqrt{57}} = \frac{5\sqrt{57}}{57}$$

• 14)  $\tan \theta = \frac{1}{4}$



$c = \sqrt{17}$

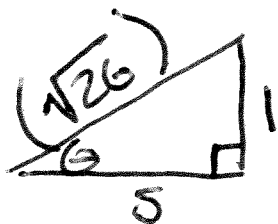
$4^2 + 1^2 = c^2 = 17$

$\sin \theta = \frac{1}{\sqrt{17}} = \frac{\sqrt{17}}{17}$        $\csc \theta = \sqrt{17}$

$\cos \theta = \frac{4}{\sqrt{17}} = \frac{4\sqrt{17}}{17}$        $\sec \theta = \frac{\sqrt{17}}{4}$

$\tan \theta = \frac{1}{4}$        $\cot \theta = 4$

• 15)  $\cot \theta = \frac{5}{1}$

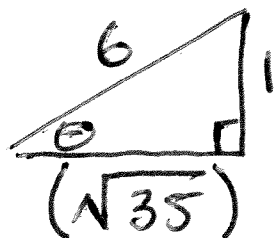


$\sin \theta = \frac{1}{\sqrt{26}} = \frac{\sqrt{26}}{26}$        $\csc \theta = \sqrt{26}$

$\cos \theta = \frac{5}{\sqrt{26}} = \frac{5\sqrt{26}}{26}$        $\sec \theta = \frac{\sqrt{26}}{5}$

$\tan \theta = \frac{1}{5}$        $\cot \theta = 5$

• 16)  $\csc \theta = \frac{6}{1}$

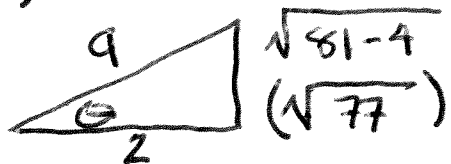


$\sin \theta = \frac{1}{6}$        $\csc \theta = 6$

$\cos \theta = \frac{\sqrt{35}}{6}$        $\sec \theta = \frac{6}{\sqrt{35}} = \frac{6\sqrt{35}}{35}$

$\tan \theta = \frac{1}{\sqrt{35}} = \frac{\sqrt{35}}{35}$        $\cot \theta = \sqrt{35}$

• 17)  $\sec \theta = \frac{9}{2}$

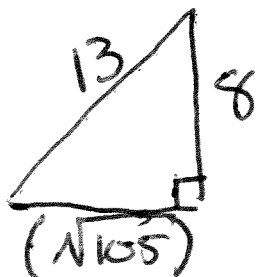


$\sin \theta = \frac{\sqrt{77}}{9}$        $\csc \theta = \frac{9}{\sqrt{77}} = \frac{9\sqrt{77}}{77}$

$\cos \theta = \frac{2}{9}$        $\sec \theta = \frac{9}{2}$

$\tan \theta = \frac{\sqrt{77}}{2}$        $\cot \theta = \frac{2}{\sqrt{77}} = \frac{2\sqrt{77}}{77}$

• 18)  $\sin \theta = \frac{8}{13}$



$\sqrt{169-64}$   
 $\sqrt{105}$

$\sin \theta = \frac{8}{13}$        $\csc \theta = \frac{13}{8}$

$\cos \theta = \frac{\sqrt{105}}{13}$        $\sec \theta = \frac{13}{\sqrt{105}} = \frac{13\sqrt{105}}{105}$

$\tan \theta = \frac{8}{\sqrt{105}} = \frac{8\sqrt{105}}{105}$        $\cot \theta = \frac{\sqrt{105}}{8}$