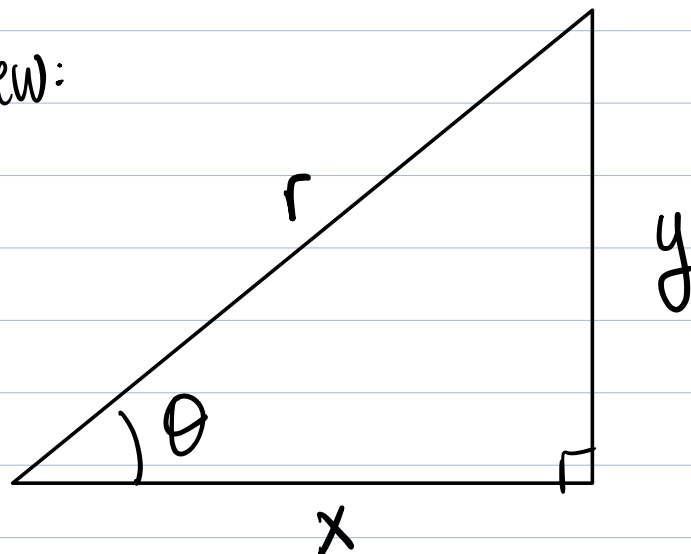


Review:



$$\sin(\theta) = \frac{y}{r}$$

$$\cos(\theta) = \frac{x}{r}$$

$$\tan(\theta) = \frac{\sin(\theta)}{\cos(\theta)} = \frac{y}{x}$$

S
H C
A T
A

$$\csc(\theta) = \frac{1}{\sin(\theta)} = \frac{r}{y}$$

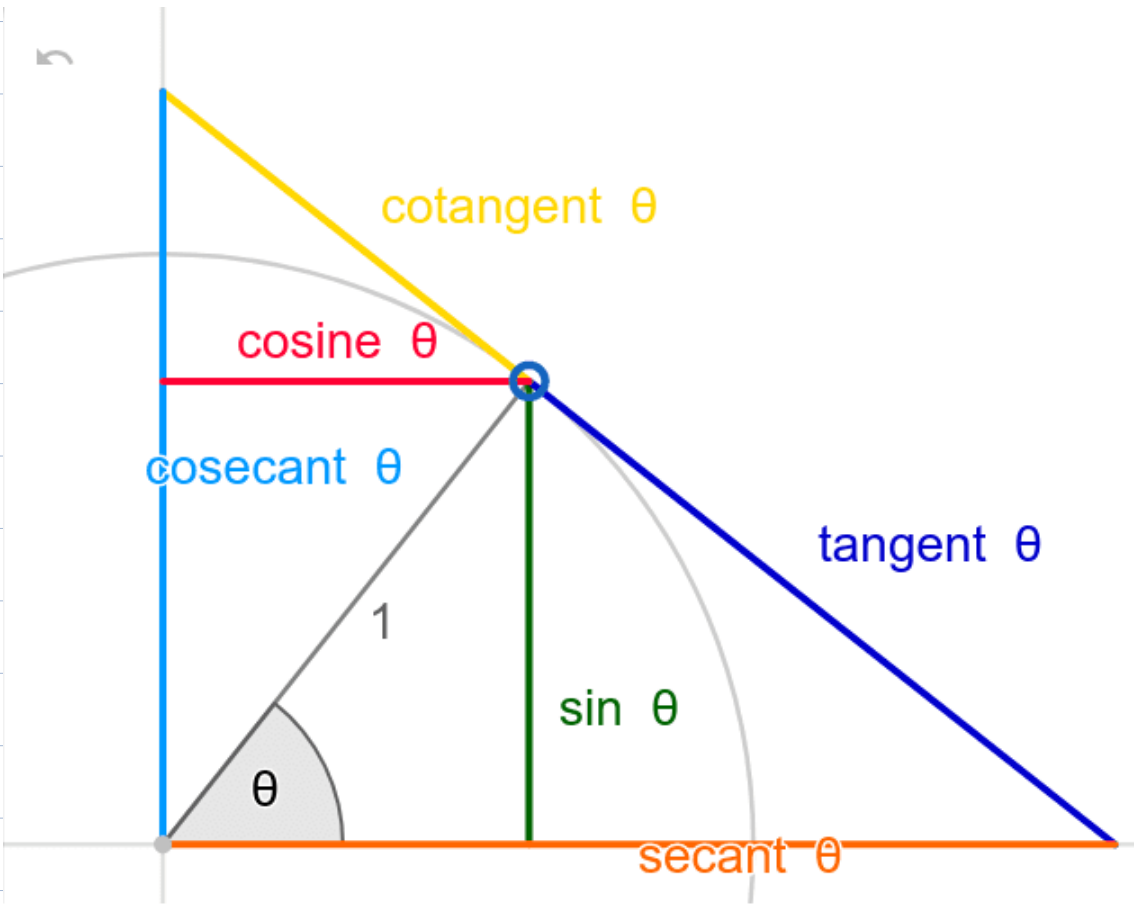
$$\sec(\theta) = \frac{1}{\cos(\theta)} = \frac{r}{x}$$

$$\cot(\theta) = \frac{\cos(\theta)}{\sin(\theta)} = \frac{x}{y}$$

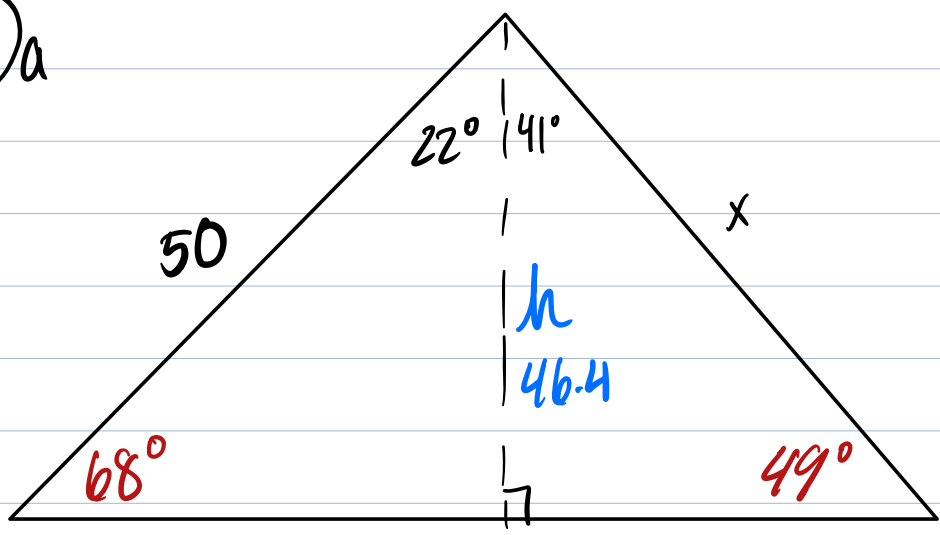
[pg. 2-3 #6, 7, 9, 10, 11]

angle of
inclination θ

depression
 θ angle of elevation



(6) a



$$\sin(68^\circ) = \frac{h}{50} \Rightarrow h = 50 \cdot \sin(68^\circ)$$

$$h = 46.36$$
$$h \approx 46.4$$

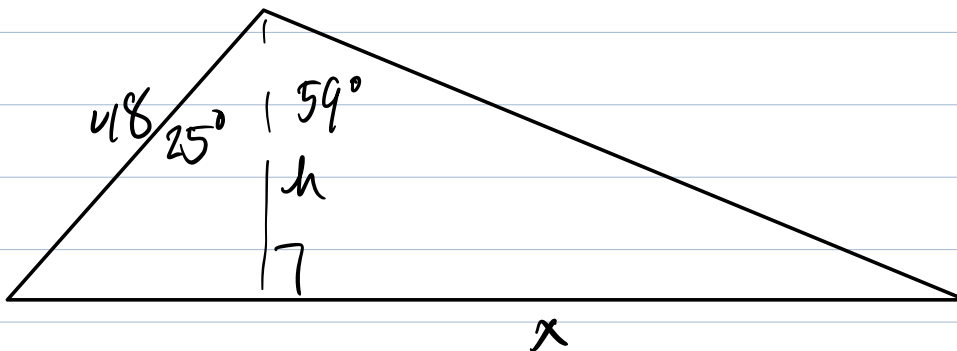
$$\sin(49^\circ) = \frac{46.4}{x} \Rightarrow x = \frac{46.4}{\sin(49^\circ)}$$

$$x = 61.5$$

[#6b, 7, 9]

(b)

Sahana



$$\cos(25^\circ) = \frac{h}{48}$$

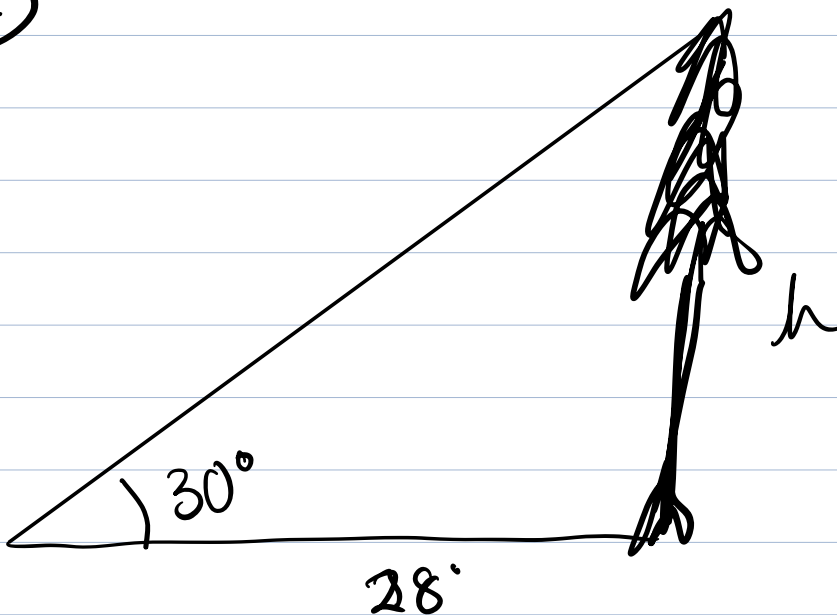
$$h = 48 \cdot \cos(25^\circ)$$

$$\tan(59^\circ) = \frac{x}{h}$$

$$x = 48 \cdot \cos(25^\circ) \cdot \tan(59^\circ)$$

$$x \approx 72$$

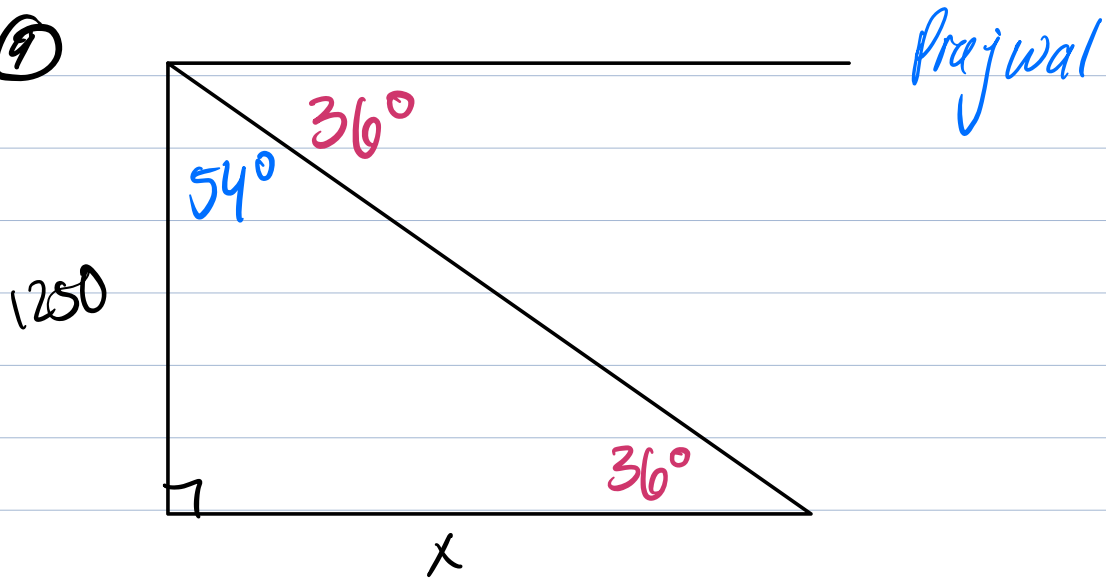
⑦



$$\tan(30^\circ) = \frac{h}{28'}$$

$$h = 16 \text{ ft}$$

9



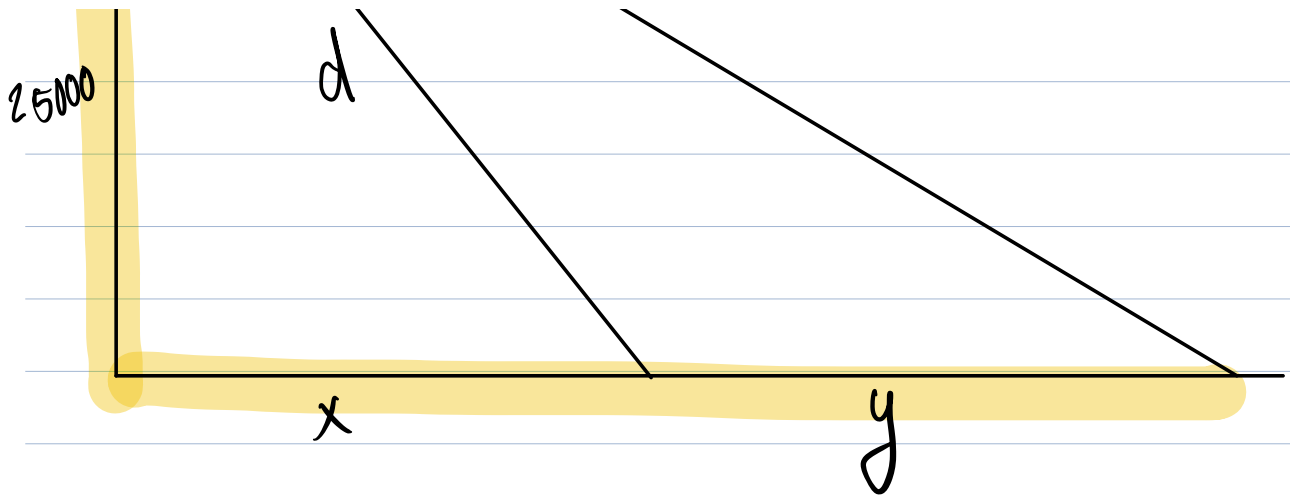
$$\tan(54^\circ) = \frac{x}{1250}$$

$$x = 1720.5 \text{ ft}$$

[# 10, 11, 14]

10





$$\tan(65^\circ) = \frac{x}{25000} \quad \Rightarrow \quad x = 25000 \cdot \tan(65^\circ)$$

$$x = 53,613 \text{ ft}$$

$$\tan(75^\circ) = \frac{x+y}{25000}$$

$$\tan(75^\circ) = \frac{53613 + y}{25000}$$

$$y = 25000 \cdot \tan(75^\circ) - 53613$$

$$y = 39,688 \text{ ft}$$

$y = 39,688 \text{ ft} \quad x \approx 53,613 \text{ ft}$

Edward

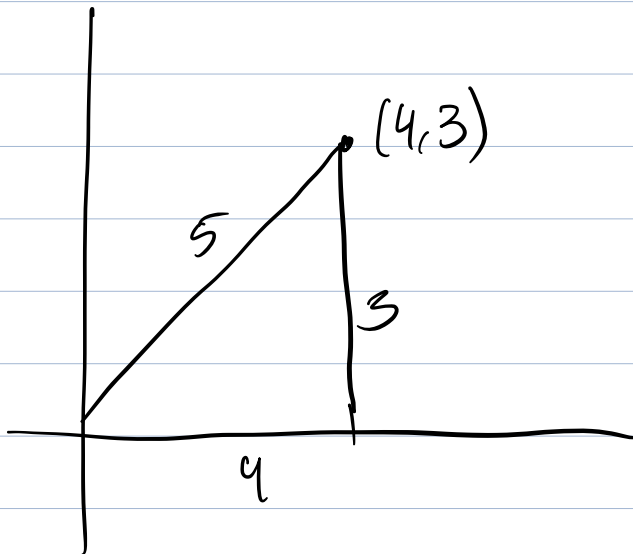
$$\textcircled{1} \quad \cos(65^\circ) = \frac{25000}{d}$$

$$\textcircled{2} \quad (25000)^2 + (x)^2 = d^2$$

$$d = 59,155 \text{ ft}$$

14

Edward



$$\sin(\theta) = \frac{3}{5}$$

$$\cos(\theta) = \frac{4}{5}$$

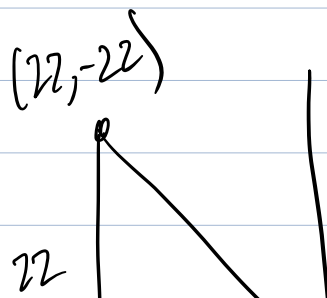
$$\tan(\theta) = \frac{3}{4}$$

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

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

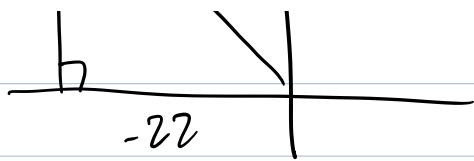
$$\cot(\theta) = \frac{4}{3}$$

b)



Aiden

$$\sin(\theta) = \frac{\sqrt{2}}{2}$$



$$\cos(\theta) = -\frac{\sqrt{2}}{2}$$

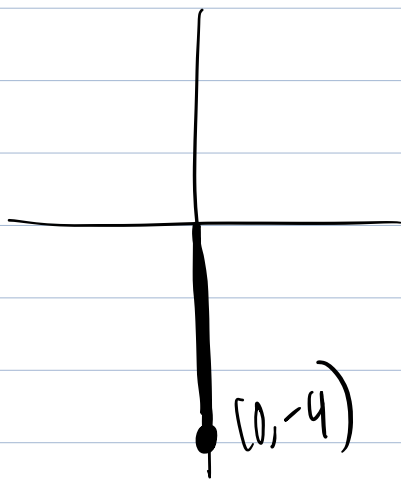
$$\tan(\theta) = -1$$

$$\csc(\theta) = \sqrt{2}$$

$$\cot(\theta) = -1$$

$$\sec(\theta) = -\sqrt{2}$$

c)



Edward

$$\sin(\theta) = \frac{-4}{4}$$

$$\cos(\theta) = 0$$

$$\tan(\theta) = \text{undef}$$

$$\csc(\theta) = -1$$

$$\sec(\theta) = \text{undef}$$

$$\cot(\theta) = 0$$

Inverse Trig functions:

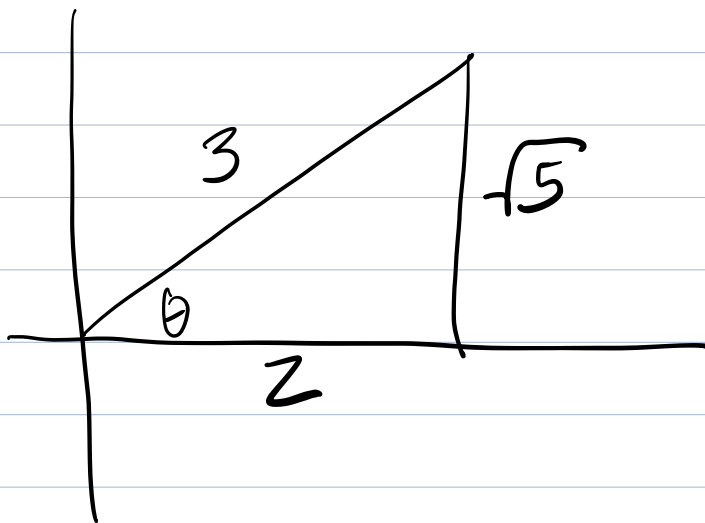
$$\cos(\theta) = \frac{-\sqrt{2}}{2}$$

$$\theta = \cos^{-1}\left(\frac{-\sqrt{2}}{2}\right) \Rightarrow \theta = \arccos\left(\frac{-\sqrt{2}}{2}\right)$$

[#15, 16, 17]

15) a) $\cos(\theta) = \frac{2}{3}$ $\cot(\theta) > 0$

Bella

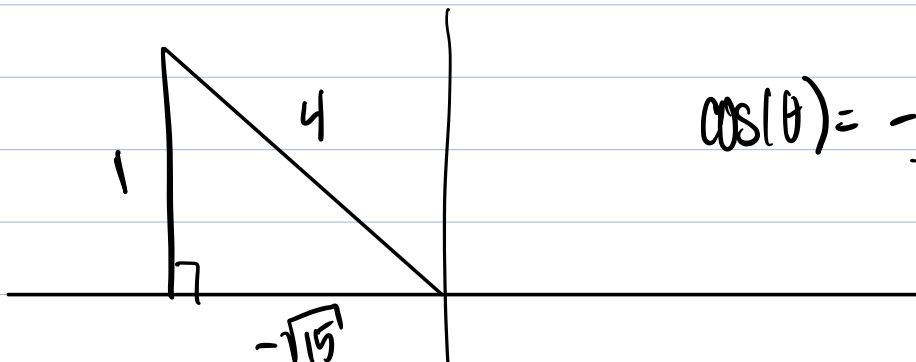


$$\sin(\theta) = \frac{\sqrt{5}}{3}$$

$$\tan(\theta) = \frac{\sqrt{5}}{2}$$

b) $\sin(\theta) = \frac{1}{4}$ $\tan(\theta) < 0$

Bella



$$\cos(\theta) = -\frac{\sqrt{15}}{4}$$

$$\tan(\theta) = -\frac{1}{\sqrt{15}}$$

$$1^2 + (\sqrt{15})^2 = (4)^2$$

$$1 + x^2 = 16$$

$$x^2 = 15$$

$$x = \sqrt{15}$$

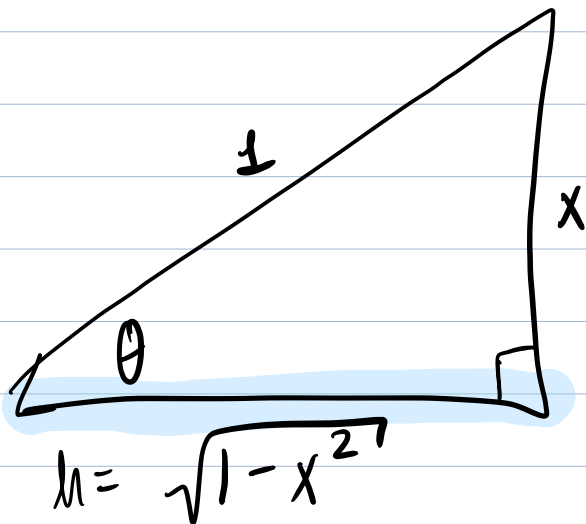
$$\tan(\theta) = -\frac{\sqrt{15}}{15}$$

(16) a) $\sin^{-1}\left(\frac{\sqrt{3}}{2}\right) = 60^\circ$

b) $\cos^{-1}\left(-\frac{1}{2}\right) = 120^\circ$

c) $\sin^{-1}\left(-\frac{1}{2}\right) = 210^\circ$

(17) a) $\cot\left(\sin^{-1}(x)\right)$



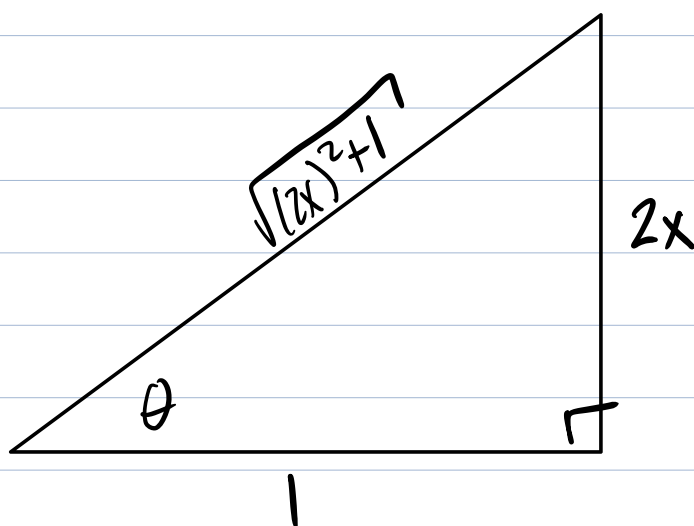
$$h^2 + x^2 = 1^2$$

$$h = \sqrt{1 - x^2}$$

$$= \cot(\theta)$$

$$= \frac{\sqrt{1-x^2}}{x}$$

$$b) \cos(\tan^{-1}(2x))$$

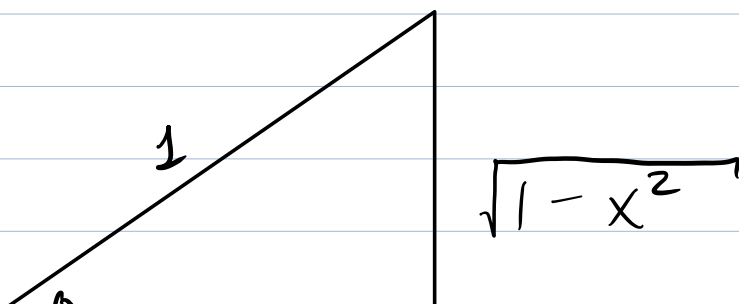


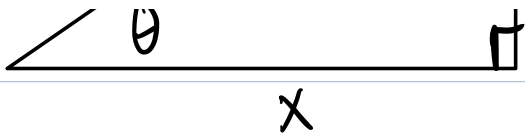
Prüfung

$$= \cos(\theta)$$

$$= \frac{1}{\sqrt{(2x)^2 + 1}}$$

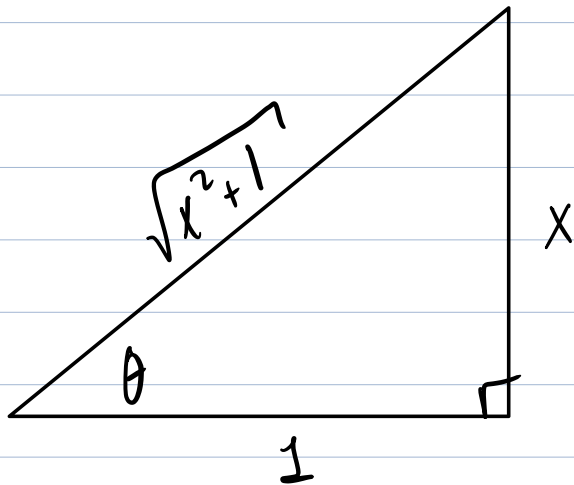
$$c) \sec(\cos^{-1}(x))$$





$$= \sec(\theta)$$
$$= \frac{1}{x}$$

a) $\csc(\tan^{-1}(x))$



$$= \csc(\theta)$$

$$= \frac{\sqrt{x^2 + 1}}{x}$$