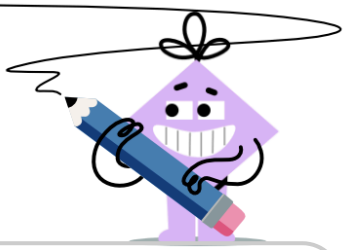
Name



# Trigonometry Identities - Pythagorean Problem Tan to Sec (without Identity, Quadrant as Ratio)

**1**

$\sin(\beta) \rightarrow$ negative

Solve for secant from tangent using trig identities

Solve:
$\tan(\beta) = -2$
$\sec(\beta) = ?$

| A | B |
|---|---|
| $\sec(\beta) = \sqrt{6}$ | $\sec(\beta) = \sqrt{5}$ |

**2**

$\sin(\theta) \rightarrow$ positive

Solve for secant from tangent using trig identities

Solve:
$\tan(\theta) = -3$
$\sec(\theta) = ?$

| A | B |
|---|---|
| $\sec(\theta) = -\sqrt{2}$ | $\sec(\theta) = -\sqrt{10}$ |

**3**

$\sin(\alpha) \rightarrow$ positive

Solve for secant from tangent using trig identities

Solve:
$\tan(\alpha) = -15$
$\sec(\alpha) = ?$

| A | B |
|---|---|
| $\sec(\alpha) = -\sqrt{226}$ | $\sec(\alpha) = -\frac{\sqrt{226}}{\sqrt{5}}$ |

**4**

$\sin(\alpha) \rightarrow$ positive

Solve for secant from tangent using trig identities

Solve:
$\tan(\alpha) = -9$
$\sec(\alpha) = ?$

| A | B |
|---|---|
| $\sec(\alpha) = \sqrt{82}$ | $\sec(\alpha) = -\sqrt{82}$ |

**5**

$\sin(\alpha) \rightarrow$ negative

Solve for secant from tangent using trig identities

Solve:
$\tan(\alpha) = -7$
$\sec(\alpha) = ?$

| A | B |
|---|---|
| $\sec(\alpha) = 5\sqrt{2}$ | $\sec(\alpha) = \sqrt{53}$ |

**6**

$\sin(\alpha) \rightarrow$ negative

Solve for secant from tangent using trig identities

Solve:
$\tan(\alpha) = -13$
$\sec(\alpha) = ?$

| A | B |
|---|---|
| $\sec(\alpha) = \sqrt{170}$ | $\sec(\alpha) = 2\sqrt{30}$ |

**7**

$\sin(\beta) \rightarrow$ positive

Solve for secant from tangent using trig identities

Solve:
$\tan(\beta) = -14$
$\sec(\beta) = ?$

| A | B |
|---|---|
| $\sec(\beta) = -\sqrt{149}$ | $\sec(\beta) = -\sqrt{197}$ |

**8**

$\sin(\beta) \rightarrow$ negative

Solve for secant from tangent using trig identities

Solve:
$\tan(\beta) = 10$
$\sec(\beta) = ?$

| A | B |
|---|---|
| $\sec(\beta) = -\sqrt{89}$ | $\sec(\beta) = -\sqrt{101}$ |