

Name: _____

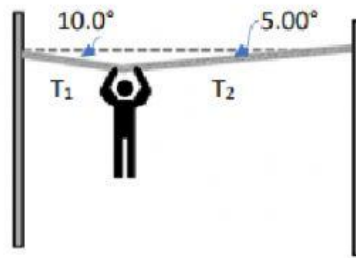
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Program, Year & Section: _____

Date: _____

Worksheet 7c Static Equilibrium

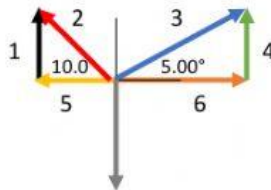
1. A 90.0-N circus performer hangs from a rope tied between two poles as shown. Find the tensions T_1 and T_2 in the two parts of the rope.



Given:

$W = \underline{\hspace{2cm}} \text{ N}$ $\theta_1 = \underline{\hspace{2cm}}^\circ$ $\theta_2 = \underline{\hspace{2cm}}^\circ$

Find: (a) T_1 and T_2



For the following questions, write the letter of your answer.

_____ Which of the following is the force T_1 ?
a. 1 b. 2 c. 3 d. 4

_____ Which of the following is the force T_2 ?
a. 1 b. 2 c. 3 d. 4

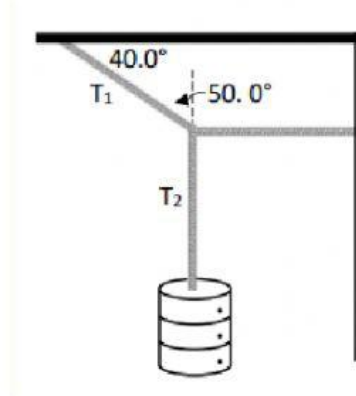
_____ Which of the following is the x-component of T_1 ?
a. 1 b. 4 c. 5 d. 6

_____ Which of the following is the y-component of T_1 ?
a. 1 b. 4 c. 5 d. 6

_____ Which of the following is the x-component of T_2 ?
a. 1 b. 4 c. 5 d. 6

- _____ Which of the following is the y-component of T_2 ?
a. 1 b. 4 c. 5 d. 6
- _____ Which of the following will give the value of the x-component of T_1 ?
a. $T_1 \sin 5.00^\circ$ c. $T_1 \cos 10.0^\circ$
b. $T_1 \cos 5.00^\circ$ d. $T_1 \sin 10.0^\circ$
- _____ Which of the following will give the value of the y-component of T_1 ?
a. $T_1 \sin 5.00^\circ$ c. $T_1 \cos 10.0^\circ$
b. $T_1 \cos 5.00^\circ$ d. $T_1 \sin 10.0^\circ$
- _____ Which of the following will give the value of the x-component of T_2 ?
a. $T_2 \sin 5.00^\circ$ c. $T_2 \cos 10.0^\circ$
b. $T_2 \cos 5.00^\circ$ d. $T_2 \sin 10.0^\circ$
- _____ Which of the following will give the value of the y-component of T_2 ?
a. $T_2 \sin 5.00^\circ$ c. $T_2 \cos 10.0^\circ$
b. $T_2 \cos 5.00^\circ$ d. $T_2 \sin 10.0^\circ$
- _____ Which of the following will give the equation for Σ_x ?
a. $T_{1X} + T_{2X} = 0$ c. $T_{2X} - T_{1X} = 0$
b. $T_{1X} - T_{2X} = 0$ d. $-T_{1X} - T_{2X} = 0$
- _____ Which of the following will give the equation for Σ_y ?
a. $T_{1Y} + T_{2Y} = 0$ c. $T_{2Y} - T_{1Y} = 0$
b. $T_{1Y} - T_{2Y} = 0$ d. $-T_{1Y} - T_{2Y} = 0$
- _____ What is the value of T_1 ?
a. 90 N b. 342 N c. 346 N d. 688 N
- _____ Which is the value of T_2 ?
a. 90 N b. 342 N c. 346 N d. 688 N

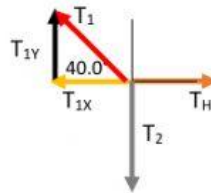
2. Find the weight of the object if the tension in the horizontal cord is 30.0 N.



Given:

$$T_H = \text{_____ N} \quad \theta_1 = \text{_____}^\circ$$

Find: (a) T_2 or W



For the following questions, write the letter of your answer.

- _____ Which of the following will give the value of the x-component of T_1 ?
- | | |
|--------------------------|----------|
| a. $T_1 \sin 40.0^\circ$ | c. T_H |
| b. $T_1 \cos 40.0^\circ$ | d. T_2 |
- _____ Which of the following will give the value of the y-component of T_1 ?
- | | |
|--------------------------|----------|
| a. $T_1 \sin 40.0^\circ$ | c. T_H |
| b. $T_1 \cos 40.0^\circ$ | d. T_2 |
- _____ Which of the following will give the value of the x-component of T_2 ?
- | | |
|--------------------------|--------------------------|
| a. $T_2 \sin 50.0^\circ$ | c. $T_2 \cos 90.0^\circ$ |
| b. $T_2 \cos 50.0^\circ$ | d. $T_2 \sin 90.0^\circ$ |
- _____ Which of the following will give the value of the y-component of T_2 ?
- | | |
|--------------------------|--------------------------|
| a. $T_2 \sin 50.0^\circ$ | c. $T_2 \cos 90.0^\circ$ |
| b. $T_2 \cos 50.0^\circ$ | d. $T_2 \sin 90.0^\circ$ |

_____ Which of the following will give the equation for Σ_x ?
a. $T_{1X} + T_H = 0$ c. $T_H - T_{1X} = 0$
b. $T_{1X} - T_H = 0$ d. $-T_H - T_{1X} = 0$

_____ Which of the following will give the equation for Σ_y ?
a. $T_{1Y} + T_2 = 0$ c. $T_2 - T_{1Y} = 0$
b. $T_{1Y} - T_2 = 0$ d. $-T_{1Y} - T_2 = 0$

_____ What is the value of T_1 ?
a. 25.2 N b. 30.0 N c. 39.2 N d. 64.4 N

_____ Which is the value of T_2 ?
a. 25.2 N b. 30.0 N c. 39.2 N d. 64.4 N