These application questions will assess your understanding of forces at an angle and vectors. Make sure to completely answer each question and to show all of your work.

For each of the right triangles below, provide the magnitudes of the missing forces and the missing angles.

1. 2.

θ = 35˚

θ = 14˚

F = \_\_\_\_\_\_\_

Fx = \_\_\_\_\_

Fy = 12 N

Fx =\_\_\_\_\_\_\_

F = 15 N

Fy \_\_\_\_\_\_\_

3. 4.

θ = 38˚

θ = 48˚

Fx = 12 N

Fy =154 N

Fx =\_\_\_\_\_\_

F =\_\_\_\_\_\_

F =\_\_\_\_\_

Fy = \_\_\_\_\_

5. 6.

Fy = 27 N

θ =\_\_\_\_\_\_\_

θ = 65˚

F = 43 N

Fy = 92 N

Fx =\_\_\_\_\_\_

F =\_\_\_\_\_\_

Fx =\_\_\_\_\_\_

7. 8.

θ =\_\_\_\_\_

θ =\_\_\_\_\_

Fy = \_\_\_\_\_\_

F = 63 N

Fx =41 N

Fx =19 N

Fy = 11 N

F = \_\_\_\_\_\_

Determine the x- and y- components of the following vectors. For these, up is positive y, right is positive x.

17 N

9.

 Fx = \_\_\_\_\_\_\_\_\_

 Fy = \_\_\_\_\_\_\_\_\_

47˚

10.

15 N

90˚

 Fx = \_\_\_\_\_\_\_\_\_

 Fy = \_\_\_\_\_\_\_\_\_

11.

 Fx = \_\_\_\_\_\_\_\_\_

45˚

14 N

 Fy = \_\_\_\_\_\_\_\_\_

12.

 Fx = \_\_\_\_\_\_\_\_\_

22 N

18˚

 Fy = \_\_\_\_\_\_\_\_\_