

Name _____

Physics
Ms. Brunsting

Vector Lab

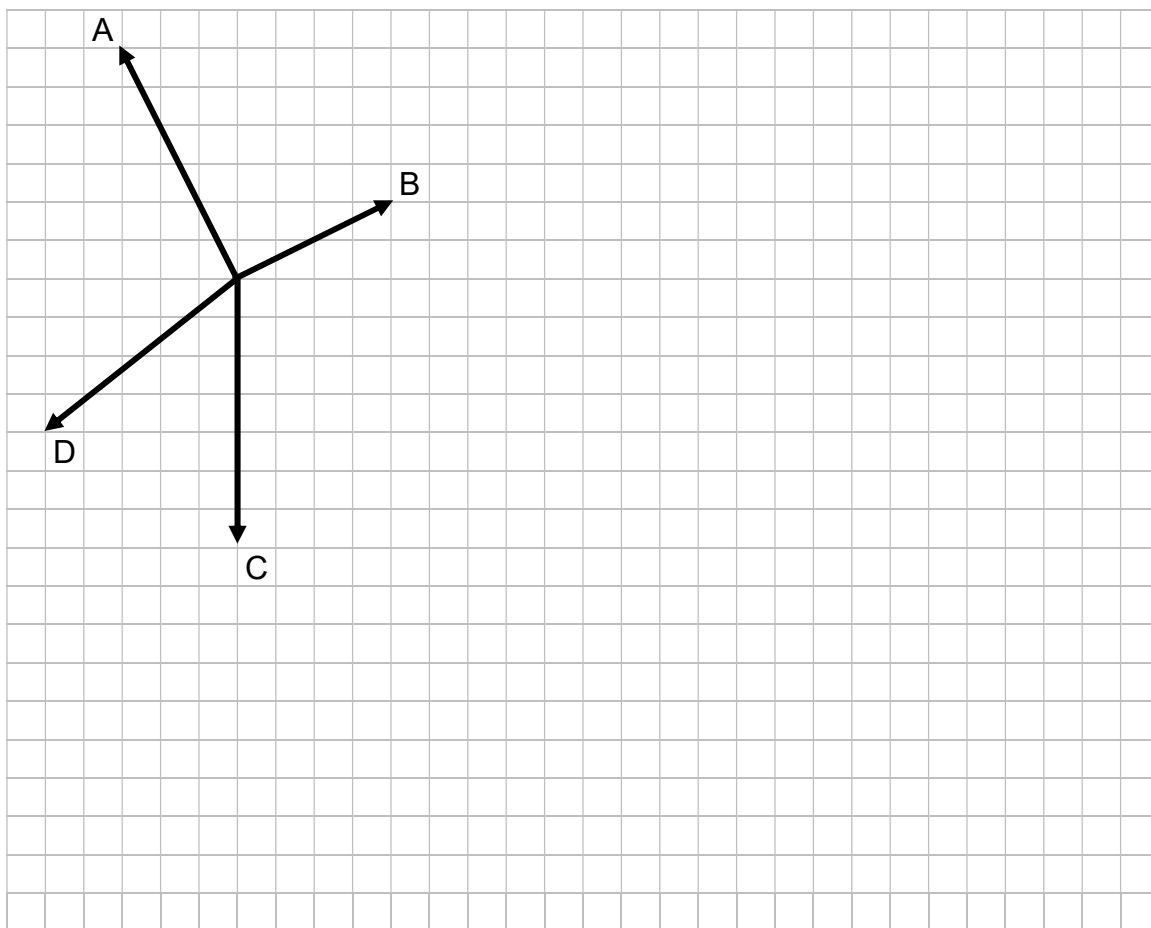
Graphically add or subtract vectors. Find:

a. $A + B$

b. $C + D$

c. $C - B$

d. $A - D$



Convert the length and direction to x and y components.

5. Length = 12 km, Angle = 32°

6. Length = 50 meters per second, Angle = 124°

7. Length = 462 miles, Angle = 195°

8. Length = 68 feet per second, Angle = 317°

Convert the x and y components to a length and direction.

9. $x = 15 \text{ m}$, $y = 24 \text{ m}$

10. $x = -80 \text{ m/s}$, $y = 19 \text{ m/s}$

11. $x = -3 \text{ km}$, $y = -11 \text{ km}$

12. $x = 14.5 \text{ feet per second}$, $y = -30.2 \text{ feet per second}$

Add the vectors mathematically. Convert your answer to length and angle notation.

17. Vector A: $6\hat{i} + 13\hat{j}$

Vector B: $12\hat{i} + 2\hat{j}$

18. Vector C: $-9.1\hat{i} - 2.7\hat{j}$

Vector D: $20.5\hat{i} - 8.4\hat{j}$

19. Vector E: 46 meters at 22°

x:

y:

Vector F: 73 meters at 50°

x:

y:

Vector Formulas:

$$R_x = |L| \cos \theta$$

$$R_y = |L| \sin \theta$$

$$\text{Length} = \sqrt{X^2 + Y^2}$$

$$\theta = \tan^{-1} \frac{Y}{X}$$

