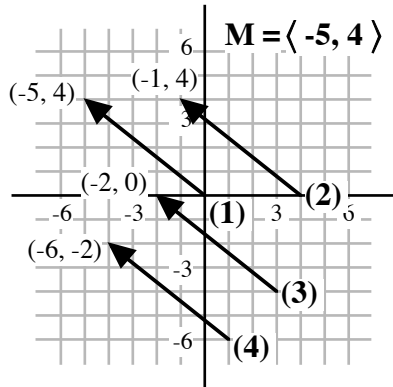


Chapter 8, Vectors and Vector Angles

Sections 8.1 - 8.2 Focus Exercise Answers

Sec. 8.1 Introduction to Vectors

#1-4:



5. $|P| = 10$

6. $|Q| = 3\sqrt{5}$

7. $|S| = 5\sqrt{5}$

8. $|T| = 10\sqrt{5}$

9. $J = \langle 24, -18 \rangle$

10. $K = \langle -60, 45 \rangle$

11. $L = \langle -8, 6 \rangle$

12. $M = \langle 16, -12 \rangle$

For #13-20, the graphs of the solutions are not yet ready.

13. $R = \langle 7, 4 \rangle$

14. $R = \langle -1, 7 \rangle$

15. $R = \langle 4, 3 \rangle$

16. $R = \langle -8, -1 \rangle$

17. $R = \langle 4, 0 \rangle$

18. $R = \langle 1, 5 \rangle$

19. $R = \langle -1, -8 \rangle$

20. $R = \langle -3, 8 \rangle$

21. $A = \langle 0, 42 \rangle$

22. $B = \langle 0, -78 \rangle$

23. $C = \langle 14, -16 \rangle$

24. $D = \langle 4, 1 \rangle$

25. $W = -9i + 2j$

26. $X = 15i - 14j$

27. $Y = 9i + 14j$

28. $Z = 14i - 16j$

Sec. 8.2 Vector Angles

Note: Your answers might vary a little due to rounding errors.

1. $\langle 19.5, 10.2 \rangle$

2. $\langle 166, 35.3 \rangle$

3. $\langle -8.4, 43.2 \rangle$

4. $\langle -6.8, 5.9 \rangle$

5. $\langle -9.2, -3.9 \rangle$

6. $\langle -8.6, -22.4 \rangle$

7. $\langle 14.5, -54.1 \rangle$

8. $\langle 39.4, -30.8 \rangle$

Oops! It appears as though there is no #9-12, but I accidentally put #13-16 twice. Yikes! The first set of #13-16 is to be renumbered #9-12. **Sorry for the confusion.**

9. $\theta = 54.5^\circ$ ($\hat{\theta} = 54.5^\circ$)

10. $\theta = 111.8^\circ$ ($\hat{\theta} = 68.2^\circ$)

11. $\theta = 260.5^\circ$ ($\hat{\theta} = 80.5^\circ$)

12. $\theta = 290.6^\circ$ ($\hat{\theta} = 69.4^\circ$)

13. $\theta = 157.4^\circ$ ($\hat{\theta} = 22.6^\circ$)

14. $\theta = 73.7^\circ$ ($\hat{\theta} = 73.7^\circ$)

15. $\theta = 292.6^\circ$ ($\hat{\theta} = 67.4^\circ$)

16. $\theta = 241.9^\circ$ ($\hat{\theta} = 61.9^\circ$)

17. $\mathbf{G} \cdot \mathbf{H} = 36$

19. $\mathbf{A} \cdot \mathbf{B} = 0$

21. $|\mathbf{M}| = \sqrt{40}$

$$|\mathbf{N}| = \sqrt{26}$$

$$\mathbf{M} \cdot \mathbf{N} = 16$$

$$\alpha = 60.256^\circ$$

$$\boxed{\alpha \approx 60.3^\circ}$$

23. $|\mathbf{S}| = \sqrt{41}$

$$|\mathbf{T}| = \sqrt{10}$$

$$\mathbf{S} \cdot \mathbf{T} = -11$$

$$\alpha = 122.905^\circ$$

$$\boxed{\alpha \approx 123.0^\circ}$$

25. $|\mathbf{E}| = \sqrt{68}$

$$|\mathbf{F}| = \sqrt{612}$$

$$\mathbf{E} \cdot \mathbf{F} = 204$$

$$\boxed{\alpha = 0^\circ}$$

27. $|\mathbf{X}| = \sqrt{45}$

$$|\mathbf{Y}| = \sqrt{80}$$

$$\mathbf{X} \cdot \mathbf{Y} = 0$$

$$\boxed{\alpha = 90^\circ}$$

18. $\mathbf{U} \cdot \mathbf{V} = -102$

20. $\mathbf{C} \cdot \mathbf{D} = -250$

22. $|\mathbf{P}| = \sqrt{80}$

$$|\mathbf{Q}| = \sqrt{50}$$

$$\mathbf{P} \cdot \mathbf{Q} = -20$$

$$\alpha = 108.49^\circ$$

$$\boxed{\alpha \approx 108.5^\circ}$$

24. $|\mathbf{W}| = \sqrt{29}$

$$|\mathbf{Z}| = \sqrt{32}$$

$$\mathbf{W} \cdot \mathbf{Z} = 12$$

$$\alpha = 66.803^\circ$$

$$\boxed{\alpha \approx 66.8^\circ}$$

24. $|\mathbf{J}| = \sqrt{104}$

$$|\mathbf{K}| = \sqrt{234}$$

$$\mathbf{J} \cdot \mathbf{K} = -156$$

$$\boxed{\alpha = 180^\circ}$$

28. $|\mathbf{Q}| = \sqrt{400}$

$$|\mathbf{R}| = \sqrt{225}$$

$$\mathbf{Q} \cdot \mathbf{R} = 0$$

$$\boxed{\alpha = 90^\circ}$$