Name _____ Date _____

Practice: For use after Lesson ~~12.7~~ 10.5, Advanced Mathematics

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Geometric Vectors

REVIEW

Use the law of sines to find the indicated measure to the nearest unit.

1. If $a = 10, b = 7, \angle B = 67°$, find $\angle A$. _____

2. If $c = 30, \angle C = 35°, \angle B = 75°$, find b. _____

Use the law of cosines to find the indicated measure to the nearest unit.

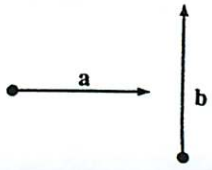
3. If $b = 24, c = 16, \angle A = 25°$, find a. _____

4. If $a = 6, c = 10, \angle B = 35°$, find b. _____

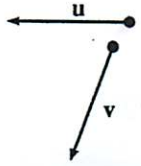
ADDITIONAL PRACTICE

Draw each pair of given vectors on a separate sheet of paper. Then use your drawing to show geometrically the indicated sum or difference of the vectors.

5. **a + b**



6. **u − v**



Find the norm of each of the following.

7. 3a _____

8. −3b _____

9. a + b _____

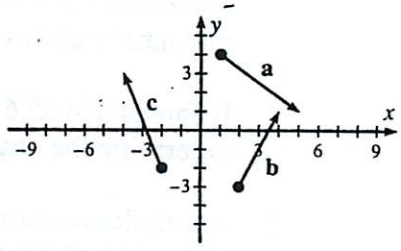
10. b − a _____

11. −2b + 3a _____

12. 2c − 2a _____

13. a + b + c _____

14. c + a − b _____



Vector **v** has magnitude M. Its tail is at the origin. Find the vertical and horizontal component vectors of the vector. Angle θ is the counterclockwise angle that the vector makes with the x-axis.

15. $M = 250, \theta = 65°$ _____

16. $M = 15.75, \theta = 145°$ _____

17. *Aviation* The air speed of an airplane is 500 mi/h, and its heading is 60°. A wind is blowing from the south at 40 mi/h. Find the plane's ground speed to the nearest mile per hour and its course to the nearest degree.

_____

CHALLENGE

18. Does the set of vectors possess the associative property? Use a diagram to illustrate your answer.