Questionnaire
(done without consulting app)

Background Information

The following information won't be used to identify you personally, but it will be used to identify ways to improve future software programs.

1. Indicate the version of the program you are running
   a. C.1
   b. D.2

2. Please circle your college class year
   a. Freshman
   b. Sophomore
   c. Junior
   d. Senior
   e. other (write in) _____

3. What is your age? _____

4. What is your gender? M / F

5. Please circle your major
   a. Computer Science
   b. Mathematics
   c. Engineering
   d. Humanities (history, English, music, etc.)
   e. Natural Science (physics, biology, chemistry, etc.)
   f. Social Science (economics, business, psychology, etc.)
   g. Undeclared or general studies
   h. Other (write in) _____

Student Evaluation

6. How well do you feel you understand the relationship between a phasor and its associated sinusoid?
   a. Not sure at all
   b. Slightly confident
   c. Fairly confident
   d. Very confident
   e. Extremely confident

7. How useful did you find the interactive app about the relationship between a phasor and its sinusoid?
   a. Not useful at all
   b. Somewhat helpful, although the written description helped more
   c. Useful, about the same as the written description
   d. Very useful, more helpful than the written description
   e. Essential; the written description did not help at all

Phasor Questions

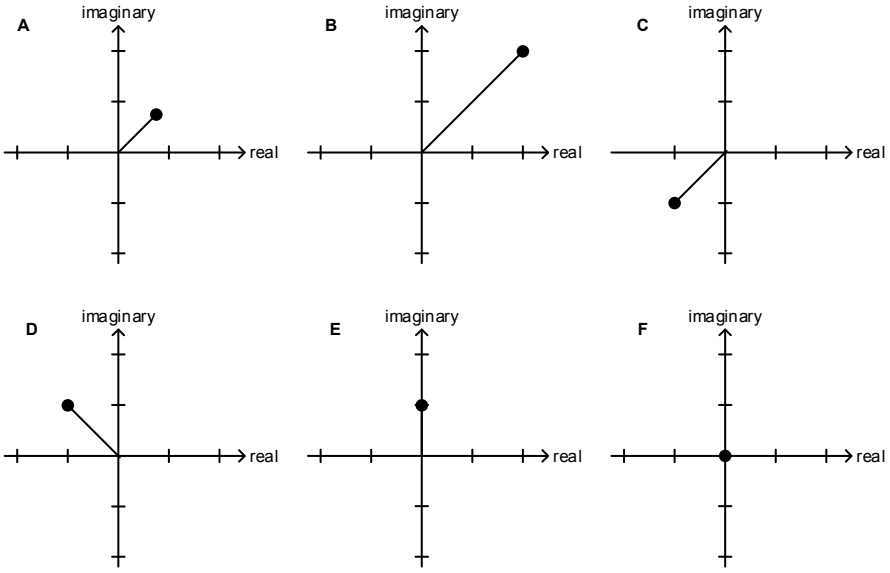
8. A sailboat's response to ocean waves is modeled by a set of linear differential equations. If the waves lap against the boat in a repeating pattern whose height h(t) are described by

$$h(t) = 27 \cos(1.5\, t + 20°) \text{ cm}$$

then one possible upward velocity of the boat is:

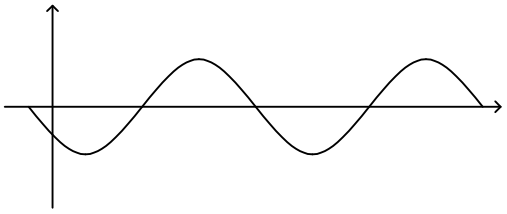
a) $v(t) = 27 \cos(2\, t + 10°)$ cm/s
b) $v(t) = 13 \cos(1.5\, t - 10°)$ cm/s
c) $v(t) = 13 \cos(t + 20°)$ cm/s
d) $v(t) = 27 \sin(0.5t + 20°)$ cm/s

For questions 9-14, match the phasor below with the correct sinusoid. All are drawn to the same scale.



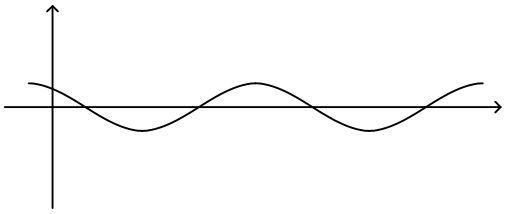
9. Circle the letter below of the phasor above corresponding to the sinusoid on the right

   A B C D E F



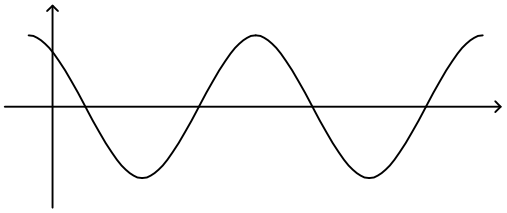
10. Circle the letter below of the phasor above corresponding to the sinusoid on the right

    A B C D E F



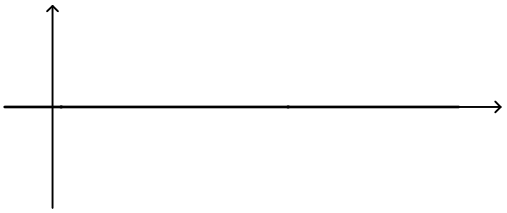
11. Circle the letter below of the phasor on the previous page corresponding to the sinusoid on the right

    A B C D E F



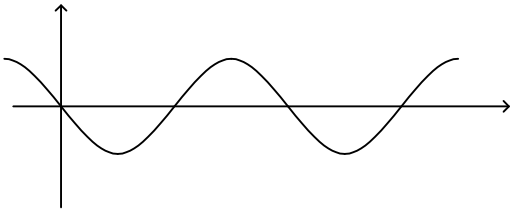
12. Circle the letter below of the phasor on the previous page corresponding to the sinusoid on the right

    A B C D E F



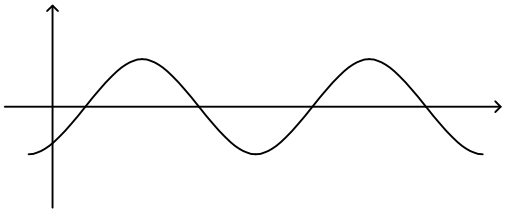
13. Circle the letter below of the phasor on the previous page corresponding to the sinusoid on the right

    A B C D E F



14. Circle the letter below of the phasor on the previous page corresponding to the sinusoid on the right

    A B C D E F



15. How effective do you feel interactive apps such as this are at teaching intuitive relationships between phasors and sinusoids, vs. other traditional methods of instruction (textbooks, lectures, videos, blackboard diagrams)
    a. Traditional methods are much more effective than interactive apps
    b. Traditional methods are slightly more effective than interactive apps
    c. They are all about the same
    d. Interactive methods are slightly more effective than traditional apps
    e. Interactive methods are much more effective than traditional apps