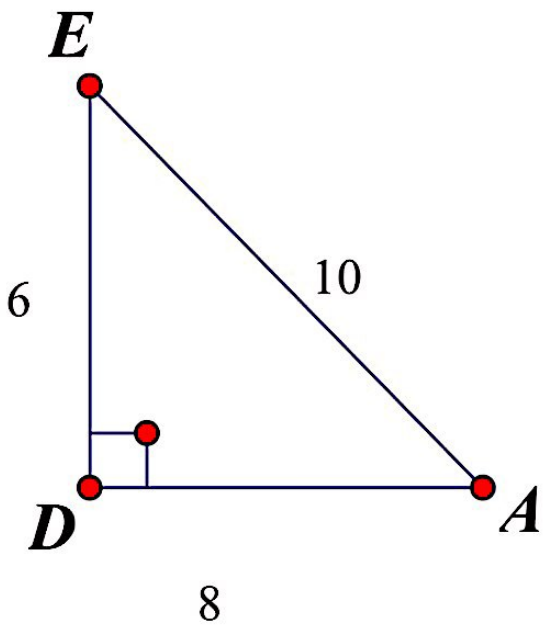


$\sin A =$ $\sin E$

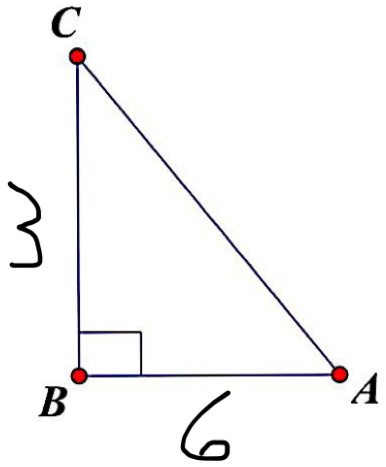
$\cos A =$ $\cos E$

$\tan A =$ $\tan E$

$\csc A =$ $\csc E$

$\sec A =$ $\sec E$

$\cot A =$ $\cot E$



$\sin A =$

$\cos A =$

$\tan A =$

$\csc A =$

$\sec A =$

$\cot A =$

2. Find the value. (Use your CALCULATOR. Round to the *nearest thousandth*, if necessary)

a. $\tan 24^\circ$

b. $\sin 30^\circ$

c. $\cos 55^\circ$

d. $\sec 72^\circ$

e. $\cot 52^\circ$

f. $\csc 40^\circ$

____ 7. A college has thirteen instructors qualified to teach a special computer lab course which requires two instructors to be present. How many different pairs of teachers could there be?

a. 78 b. 169 c. 39 d. 66

____ 8. You own 8 cassettes and are taking 3 on vacation. In how many ways can you choose 3 cassettes from the 8?

a. 168 b. 56 c. 40,320 d. 24

____ 9. Evaluate ${}_7P_2$.

a. 21 b. 42 c. 5,040 d. 7

____ 10. Evaluate ${}_4C_3$.

a. 1 b. 24 c. 4 d. 6

6. Find the number of permutations of the letters of these words:

   a. DEED

   b. COMMITTEE

   c. CINCINNATI

12. In how many ways can the 4 call letters of a radio station be arranged if the first letter must be W or K and no letters repeat?

Answer:_____

13. There are 5 different routes that a commuter can take from her home to the office. In how many ways can she make a round trip if she uses different routes for coming and going?

Answer:_____

14. How many ways can you select a volleyball team (6 players) from a group of 8 people?

Answer:_____

15. How many 4-letter "words" can you make from a list of 12 letters if you use each letter only once in each word?

Answer:_____

16. How many ways can eight different cans of soup be displayed in a row on a shelf?

Answer:_____

17. At the 1992 Olympic Games, eight women qualified for the women's 400-meter finals in track and field. Only three women can win medals. How many different ways could the top three medal winners occur?

Answer:_____

18. The state of Ohio has a Super Lotto drawing twice a week in which 6 numbers (1 through 46) are drawn at random. How many ways are 6 numbers drawn?

Answer:_____

19. A box contains 12 black and 5 green marbles. In how many ways can 3 black and 2 green marbles be chosen?

Answer:_____

Hint: This is a double combination AND a counting principle at the same time.