Trigonometry (Basic)
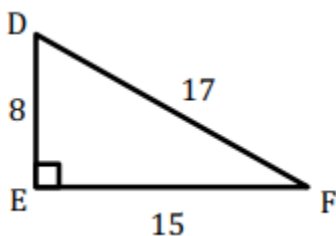
Multiple Choice

1. Right triangle ΔDEF is shown below. What is $\tan F$?

   A) $\frac{8}{17}$

   B) $\frac{8}{15}$
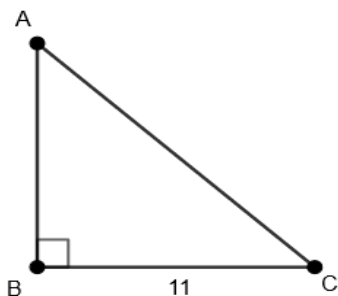
   C) $\frac{15}{17}$

   D) $\frac{15}{8}$

2. For an angle with measure α in a right triangle, $\sin \alpha = \frac{180}{181}$ and $\tan \alpha = \frac{180}{19}$. What is the value of $\cos \alpha$?

   A) $\frac{19}{181}$

   B) $\frac{19}{180}$

   C) $\frac{19}{\sqrt{65,161}}$

   D) $\frac{19}{\sqrt{32,039}}$

3. In triangle ABC, which expression represents the length of line segment AB ?

   A) $11 \cos C$

   B) $11 \tan C$

   C) $\frac{\cos C}{11}$

   D) $\frac{\tan C}{11}$

4. The number of radians in a 900-degree angle can be written as $x\pi$, where x is a constant. What is the value of x?

   A) 3
   B) 4
   C) 5
   D) 6

5. The angle of depression from the top of a tower to a spot on level ground 54 feet away from the base of the spire is 20°. Which of the following is closest to the height of the tower, in feet?
A)   19
B)   39
C)   81
D) 148

6. Angle $\angle MNO$ is shown below with the given lengths in coordinate units. What is the measure of $\angle MNO$, in radians?
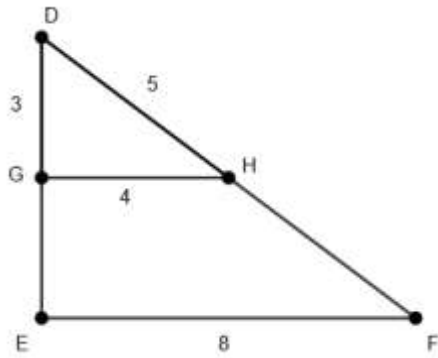
A) $\frac{\pi}{4}$

B) $\frac{3}{4\pi}$

C) $\frac{3\pi}{4}$

D) $\frac{4\pi}{3}$
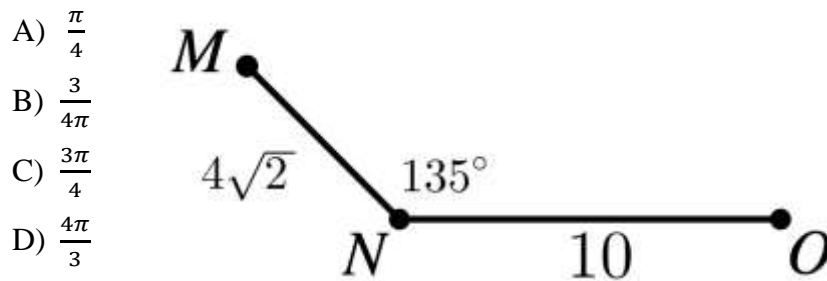
7. For triangle ΔLMN, where angle M is a right angle, $\cos L = \frac{36}{42}$. What is $\sin N$?

A) $\frac{18}{20}$

B) $\frac{18}{\sqrt{117}}$

C) $\frac{18}{21}$

D) $\frac{\sqrt{117}}{21}$

8. The number of degrees in a $\frac{5\pi}{3}$ radian angle can be written as $10y$, where y is a constant. What is the value of y?
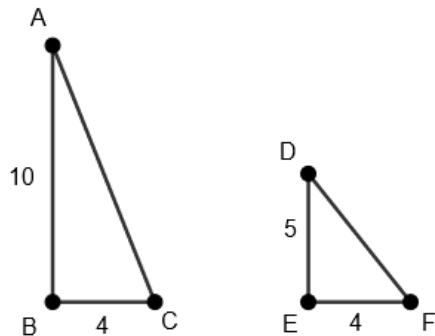A)   3
B)   10
C)   30
D) 300

9.

In triangle DEF, Point H lies on line segment DF and point G lies on line segment DE. What is the cosine of angle F ?

A) $\frac{3}{5}$

B) $2\left(\frac{3}{5}\right)$

C) $\frac{4}{5}$
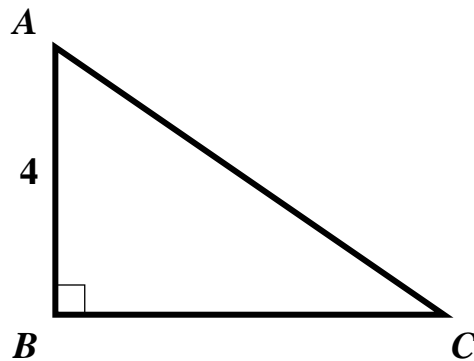
D) $2\left(\frac{4}{5}\right)$

10. Right triangles ABC and DEF are shown. Which of the following statements about these triangles is true?

A) $\cos C = \frac{1}{2}\cos F$

B) $\cos C = 2\cos F$

C) $\tan C = \frac{1}{2}\tan F$

D) $\tan C = 2\tan F$

Grid In

11. Triangle ABC, shown below, has an area of 18 cm^2. What is $\tan C$?

12. In a right triangle, one angle measures y degrees, and $\sin y = \frac{1}{2}$. What is $\cos(90 - y)$?

13. An arc of a circle measures 147 degrees. To the nearest tenth, what is the measure, in radians, of this arc?

14. In the xy-plane, the unit circle with center at the origin O contains point N with coordinates $(-1, 0)$ and point P with coordinates $\left(-\frac{4}{5}, \frac{3}{5}\right)$. What is the value of the sine of angle NOP ?

15. In $\triangle ABC$, the measure of angle B is 90 degrees, $\sin C = \frac{3}{4}$, and the length of $\overline{AB}$ is 20 inches. What is the length, in inches, of $\overline{AC}$?