14. If the height of an equilateral triangle is 9, what is its area?
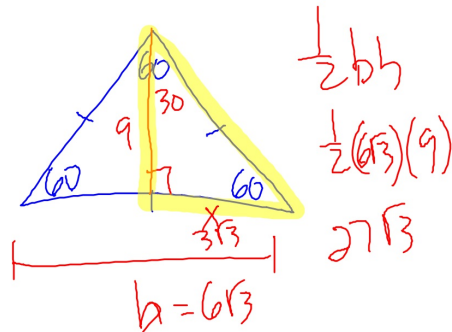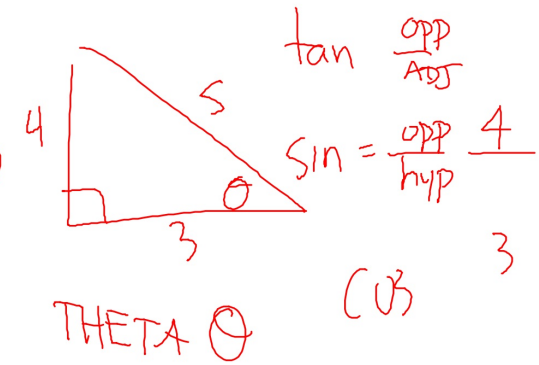
(F) 27

(G) 54

(H) 81

(J) $27\sqrt{3}$

(K) $54\sqrt{3}$

Handwritten work: $\frac{1}{2}bh$; $\frac{1}{2}(6\sqrt{3})(9)$; $27\sqrt{3}$; $b = 6\sqrt{3}$; triangle with angles 60, 60, 30, height 9, base $3\sqrt{3}$

26. If $\tan\theta = \frac{4}{3}$, then $\sin\theta =$

(F) $\frac{3}{4}$

(G) $\frac{3}{5}$

(H) $\frac{4}{5}$

(J) $\frac{5}{3}$

(K) $\frac{5}{4}$

Handwritten work: $\tan \frac{OPP}{ADJ}$; right triangle with legs 4 and 3, hypotenuse 5, angle θ ; $\sin = \frac{OPP}{hyp} = \frac{4}{5}$; $\cos \frac{3}{5}$; THETA θ
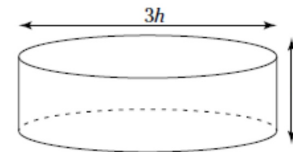
48. On the xy-plane, what is the area of a circle with this equation: $(x + 3)^2 + (y - 4)^2 = 49$?

(F) 5π

(G) 7π

(H) 25π

(J) 49π

(K) 125π

Handwritten work: $(x-h)^2 + (y-k)^2 = r^2$; $r = 7$; $A = \pi r^2 = 49\pi$

50. The following figure shows a cylindrical tank whose diameter is 3 times the length of its height. The tank holds approximately 231.5 cubic meters of fluid. Which of the following answer choices most closely approximates the height of the tank?

(Figure: cylinder with width 3h and height h)

(F) 2 meters

(G) 3 meters

(H) 4 meters

(J) 5 meters

(K) 6 meters

Handwritten work: $V = Bh$; $B = \pi r^2$; $\pi(1.5h)^2$; $231.5 = \pi \cdot 2.25h^2 \cdot h$; $231.5 = 7.07h^3$