MIXED REVIEW FOR TEKS

TAKS PRACTICE
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Lessons 6.1–6.3

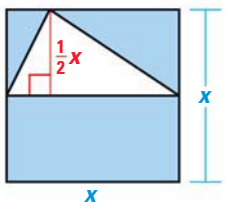
MULTIPLE CHOICE

1. **BOWLING** The formula for the volume V of a sphere in terms of its surface area S is $V = 3^{-1}(4\pi)^{-1/2}(S^3)^{1/2}$. A candlepin bowling ball has a surface area of about 79 square inches. What is its volume to the nearest cubic inch? *TEKS 2A.2.A*

   Ⓐ 66 in.^{3} Ⓑ 184 in.^{3}

   Ⓒ 368 in.^{3} Ⓓ 594 in.^{3}

2. **AREA OF SHADED REGION** A triangle is inscribed in a square, as shown. Which function $r(x)$ represents the area of the shaded region? *TEKS 2A.2.A*



   Ⓕ $r(x) = \frac{3}{4}x$

   Ⓖ $r(x) = \frac{1}{4}x^2$

   Ⓗ $r(x) = \frac{3}{4}x^2$

   Ⓙ $r(x) = \frac{1}{2}x^4$

3. **SALARY** You are working as a sales representative for a clothing manufacturer. You are paid an annual salary plus a bonus of 3% of your sales over $100,000. Consider these two functions:

   $f(x) = x - 100{,}000 \qquad g(x) = 0.03x$

   Which expression represents your bonus when $x > 100{,}000$? *TEKS a.3*

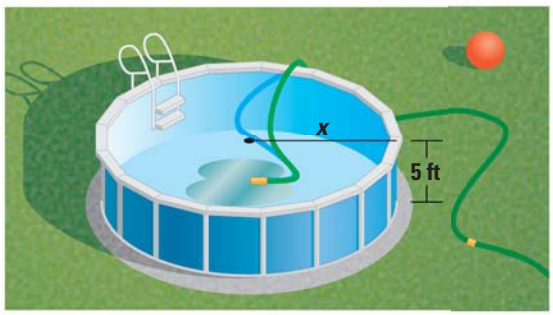
   Ⓐ $f(x) \cdot g(x)$

   Ⓑ $\frac{f(x)}{g(x)}$

   Ⓒ $f(g(x))$

   Ⓓ $g(f(x))$

4. **SWIMMING POOL** A cylindrical above-ground pool has a height of 5 feet and a radius of x feet. You use a hose to fill the pool with water. Water flows from the hose at a rate of 128 cubic feet per hour. After 8.8 hours, the pool is half full. What is the radius of the pool to the nearest foot? Use 3.14 for π. *TEKS 2A.2.A*



   Ⓕ 6 feet Ⓖ 7 feet

   Ⓗ 12 feet Ⓙ 24 feet

5. **FUNCTION COMPOSITION** Which function $f(x)$ satisfies the condition that $f(f(x)) = x$? *TEKS a.3*

   Ⓐ $f(x) = 3x^{-2}$

   Ⓑ $f(x) = x + 3$

   Ⓒ $f(x) = 5 - x$

   Ⓓ $f(x) = x^{1/2}$

6. **SIMPLIFYING AN EXPRESSION** What is the simplified form of the expression $\left(\frac{16^{1/2}}{4^{1/2}}\right)^5$? *TEKS 2A.2.A*

   Ⓕ 2

   Ⓖ 32

   Ⓗ 512

   Ⓙ 1024

GRIDDED ANSWER 0 1 2 3 4 5 6 7 8 9

7. **GEOMETRY** The volume of a sphere is 900 cubic inches. Use the formula for the volume of a sphere, $V = \frac{4}{3}\pi r^3$, to find the radius r of the sphere to the nearest hundredth of an inch. Use 3.14 for π. *TEKS 2A.2.A*