



MIXED REVIEW FOR TEKS



TAKS PRACTICE
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Lessons 7.1–7.4

MULTIPLE CHOICE

1. **COMPOUND INTEREST** You deposit \$2000 in an account that pays 4% annual interest compounded continuously. After how many full years will the balance first exceed \$2250? **TEKS 2A.11.F**

- (A) 1 year
- (B) 2 years
- (C) 3 years
- (D) 6 years

2. **GEOMETRIC PATTERNS** When a piece of paper is folded in half, the paper is divided into two regions, each of which has half the area of the paper. If this process is repeated, the number of regions increases while the area of each region decreases. The table below shows the number of regions and the fractional area of each region after each successive fold. Which function can be used to find the fractional area $A(n)$ of each region after n folds? **TEKS 2A.11.D**

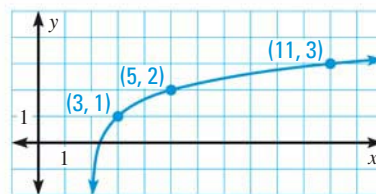
Fold number	0	1	2	3	4
Number of regions	1	2	4	8	16
Fractional area of each region	1	$\frac{1}{2}$	$\frac{1}{4}$	$\frac{1}{8}$	$\frac{1}{16}$

- (F) $A(n) = \frac{1}{2^n}$
 - (G) $A(n) = \frac{1}{(n+1)^n}$
 - (H) $A(n) = \frac{1}{n+1}$
 - (J) $A(n) = 2^n$
3. **CERTIFICATES OF DEPOSIT** A local bank offers certificate of deposit (CD) accounts that you can use to save money and earn interest. You deposit \$1500 into a three year CD that pays 2% annual interest. The interest for the CD is compounded monthly. How much interest will the CD earn by the end of its term? **TEKS 2A.11.D**
- (A) \$87.42
 - (B) \$90.83
 - (C) \$92.68
 - (D) \$124.50

4. **PETROLEUM** The amount y (in billions of barrels) of oil collected by a petroleum company drilling on the U.S. continental shelf can be modeled by $y = 12.263 \ln x - 45.381$ where x is the number of wells drilled. About how many barrels of oil would you expect to be collected if 1000 wells are drilled? **TEKS 2A.11.D**

- (F) 11.1 billion
- (G) 30.5 billion
- (H) 39.3 billion
- (J) 84.7 billion

5. **TRANSLATIONS** The graph shown below is a translation of the graph of $y = \log_3 x$. What is the equation of the graph? **TEKS 2A.11.B**



- (A) $y = \log_3(x - 2) - 1$
- (B) $y = \log_3(x - 2) + 1$
- (C) $y = \log_3(x - 1) + 2$
- (D) $y = \log_3(x + 2) - 1$

GRIDDED ANSWER

6. **RADIOACTIVE DECAY** Tritium is a radioactive substance used to illuminate exit signs. The amount of tritium disappears over time, a process called radioactive decay. If you start with a 10 milligram sample of tritium, the number y of milligrams left after t years is given by $y = 10e^{-0.0564t}$. How many milligrams of tritium are left after 10 years? Round your answer to the nearest hundredth of a milligram. **TEKS 2A.11.D**

