

\* USE SAT STRATEGIES FOR M.C. QUESTIONS!

1. Which expression is equivalent to  $\frac{x^{-1}y^4}{3x^{-5}y^{-1}}$ ? =  $\frac{1}{3}x^4y^5$

- 1)  $\frac{x^4y^5}{3}$  2)  $\frac{x^5y^4}{3}$  3)  $3x^4y^5$  4)  $\frac{y^4}{3x^5}$

2. Simplify:  $\sqrt{50x^3y^2}$  =  $5xy\sqrt{2x}$

3. Simplify:  $\sqrt[5]{243a^5b^{10}}$  =  $3ab^2\sqrt[5]{ab^2}$

4. The expression  $\sqrt[3]{64a^{16}}$  is equivalent to

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- 1)  $8a^4$   
 2)  $8a^8$   
 3)  $4a^5\sqrt[3]{a}$   
 4)  $4a^3\sqrt[3]{a^5}$

5. Simplify the expression  $5\sqrt{3x^3} - 2\sqrt{27x^3}$   
 $5x\sqrt{3x} - 2(3x\sqrt{3x})$   
 $5x\sqrt{3x} - 6x\sqrt{3x} = -1x\sqrt{3x}$

6. Solve for x:  $(\sqrt{x+14})^2 = (x+2)^2$

$$x+14 = x^2+4x+4$$

$$x^2+3x-10=0$$

$$(x+5)(x-2)=0$$

REJECT  $x = -5$  |  $x = 2$

8. Solve the following system of equations:

$$x^2 + (x-3)^2 = 9$$

$$x^2 + x^2 - 6x + 9 = 9$$

$$2x^2 - 6x + 9 = 9$$

$$2x^2 - 6x = 0$$

$$x^2 + y^2 = 9$$

$$y = x - 3$$

$$2x(x-3) = 0$$

$2x = 0$	$x - 3 = 0$
$x = 0$	$x = 3$
$y = 0 - 3$	$y = 3 - 3$
$y = -3$	$y = 0$

7. Solve for x:  $\sqrt{4x-4} - \sqrt{x+8} = 0$

- 1) 1 2) -8 3) -4 4) 4

\* Plug in ANSWERS!

$$\sqrt{4(4)-4} - \sqrt{4+8} = 0$$

$$\sqrt{12} - \sqrt{12} = 0$$

$$0 = 0 \checkmark$$

Unit 6 Questions

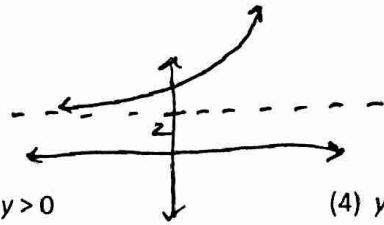
$$y = 5000 \left(1 + \frac{0.03}{4}\right)^{4(5)} = 5805.92$$

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9. If \$5000 is invested at a rate of 3% compounded <sup>n=4</sup> quarterly, what is the value of the investment in 5 years?

- (1) \$5190.33      (2) \$5796.37      (3) \$5805.92      (4) \$5808.08

y = ?  
a = 5000  
r = 0.03  
n = 4  
t = 5



10. What is the domain of  $f(x) = 2^x + 2$ ?

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- (1) All integers      (2) all real numbers      (3)  $y > 0$       (4)  $y > 2$

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11. Susie invests \$500 in an account that is compounded <sup>"e"</sup> continuously at an annual interest rate of 5%, according to the formula  $A = Pe^{rt}$ , where  $A$  is the amount accrued,  $P$  is the principal,  $r$  is the rate of interest, and  $t$  is the time, in years. Approximately how many years will it take for Susie's money to double?  $\rightarrow$  \$1000

- (1) 1.4      (2) 6.0      (3) 13.9      (4) 14.7

$$1000 = 500 e^{0.05t}$$

PLUG IN ANSWERS FOR "e" TO SEE WHICH ONE IS CLOSEST TO \$1,000.

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12. The value of  $x$  in the equation  $4^{2x+5} = 8^{3x}$  is \* OR JUST PLUG IN ANSWERS FOR  $x$  TO SEE WHICH ONE WORKS!

- (1) 1      (2) 2      (3) 5      (4) -10

$$2^{2(2x+5)} = 2^{3(3x)}$$

$$\begin{aligned} 2(2x+5) &= 3(3x) \\ 4x+10 &= 9x \\ -4x &\quad -4x \\ \hline 10 &= 5x \end{aligned} \quad x=2$$

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13. Akeem invests \$25,000 in an account that pays 4.75% annual interest compounded continuously. Using the formula  $A = Pe^{rt}$ , where  $A$  = the amount in the account after  $t$  years,  $P$  = principal invested, and  $r$  = the annual interest rate, how many years, to the nearest tenth, will it take for Akeem's investment to double? (\* SAME AS #11)

- (1) 10.0      (2) 14.6      (3) 23.1      (4) 24.0

$$50,000 = 25,000 e^{0.0475t}$$

This is the closest to \$50,000!

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14. The solution set to the equation  $3^{2x} = 11$  is \* USE CALC TO FIND DECIMAL VALUES FOR THE ANSWERS, THEN PLUG THEM IN FOR  $x$  TO SEE IF THEY WORK

- (1)  $\frac{\log 11}{2 \log 3}$       (2)  $\frac{\log 11}{\log 9}$       (3) both choices (1) and (2)      (4) {

$$1.0913$$

$$1.0913$$

CHECK!  
 $3^{2(1.0913)} = 11$

$$10.999295 = 11 \checkmark$$