ALGEBRA II, 2$^{\text{ND}}$ EDITION
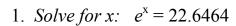## – ON-LINE TEST 30 –
REVISED: SEPTEMBER 2006

(This test covers material up to Lesson 120. Take this test after completion of Lesson 124.)

1. *Solve for x:* $e^x = 22.6464$

(A) 1.36   (B) $6.84237x10^9$ (C) 3.12   (D) $4.43x10^{22}$ (E) none of these

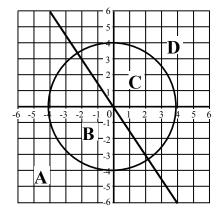2. *Which region of the graph at right satisfies the conditions for this system of inequalities ?*

$$\{x^2 + y^2 \geq 16\} \qquad \{y < \text{- }3/2 \text{ x}\}$$

(A) A   (B) B   (C) C

(D) D   (E) none of these

3. *Solve for b:* $28 = 10^{b+2}$

(A) 1.3322   (B) 1.44716   (C) - 0.5528   (D) 26   (E) none of these

4. *The organism grew exponentially. At first, it had 1200 cells. After two days it had 3000. How many cells will it have after five more days ?*

(A) 11858.5   (B) 29646.4   (C) 6300   (D) 0.458   (E) none of these

5. *How many possible answer combinations are there to a nine question multiple choice test with five options per question ?*

(A) 1953125   (B) 59049   (C) 362880   (D) 45   (E) none of these

6. *Add* $3\angle\underline{25°} - 5\angle\underline{125°}$

(A) $5.831\angle\underline{-100°}$ (B) $6.262\angle\underline{-26.85°}$ (C) $2.0\angle\underline{204.97°}$

(D) $-2\angle\underline{-100°}$ (E) none of these

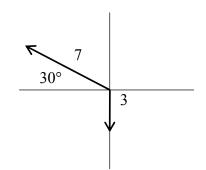7. *Which expression corresponds*
   to the graph at right ?

(A) $\{x \in J \mid 4 < x < -3\}$ (B) $\{x \in Q \mid 3 < -x < -4\}$ (C) $\{x \in R \mid -2 \le x + 1 \le 5\}$

(D) $\{x \in R \mid -3 < x < 4\}$ (E) none of these

8. *Solve for c:* $\log c = 22026$

(A) 5.892   (B) 4.343   (C) 10   (D) 10^{22026} (E) none of these

9. *What is the probability that in two rolls of a single die, a man will roll a 2 on the first*
   roll and a number greater than five on the second ?

(A) $\dfrac{1}{3}$ (B) $\dfrac{1}{6}$ (C) $\dfrac{1}{12}$ (D) $\dfrac{1}{18}$ (E) none of these

10. *Solve for x:* $\log_4 (x - 2) + \log_4 6 = \log_4 48$

(A) 10^{48} (B) 44   (C) 8   (D) 10   (E) none of these

11. *Eight years ago Charles was 1 year older than twice David's age. In eight years,*
    Charles will be $\dfrac{7}{6}$ *as old as David will be then. What is David's age now ?*

(A) 13   (B) 18   (C) $\dfrac{6}{5}$ (D) 10   (E) none of these

12. *Two vectors act on a point as shown as right.*
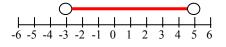   *What is the resultant vector?*

(A) $5\angle\underline{210°}$ (B) $8.889\angle\underline{-47.02°}$ (C) $6.083\angle\underline{175.24°}$

(D) $7.616\angle\underline{210°}$ (E) none of these

13. *Since pH = - log H^+, what is the pH of a solution where the H^+ is 0.723 mole/liter ?*

(A) 0.1409   (B) 5.284   (C) - 7.099   (D) - 0.1409   (E) none of these

14. *Solve for y: $\log_7 (50 - 4y) - \log_7 (18 - y) = \log_7 2$*

(A) $\dfrac{61}{4} \pm \sqrt{129}$ (B) 10   (C) 7   (D) $\dfrac{66}{5}$ (E) none of these

15. *Which inequality corresponds to the graph at right ?*
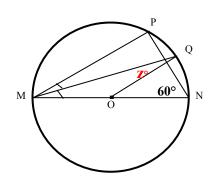
(A) $\{x \in R \mid | x-1 |< 4\}$ (B) $\{x \in R \mid - 3 <| x |< 5\}$

(C) $\{x \in R \mid | x |\le 3\}$ (D) $\{x \in R \mid - 4 \le| x |\le 6\}$ (E) none of these

16. *What is the area of an equilateral triangle with perimeter of 36 inches ?*

(A) 144 in   (B) 72 in   (C) 81 in   (D) 324 in   (E) none of these

17. *What is the measure of z in circle MPN,*
    with diameter MN and center O if
    line MQ is the bisector of $\angle PMN$?

(A) 30°   (B) 15°   (C) 60°

(D) $30\sqrt{3}$ ^{o} (E) none of these

18. *Write 24.24$\overline{2}$ (with the last 2 repeating endlessly) as a fraction of integers.*

(A) $\dfrac{10909}{450}$
(B) $\dfrac{800}{33}$
(C) $\dfrac{21818}{999}$
(D) $\dfrac{12121}{500}$
(E) none of these

19. *At full throttle, the boat went upstream 32 miles in 8 times the time it took to go downstream 32 miles at full throttle. If the current was 7 miles per hour, what is the speed of the boat in still water ?*

(A) 56 mph
(B) 9 mph
(C) 4 mph
(D) $\dfrac{22}{7}$ mph
(E) none of these

20. *Solve for m:* $2 \log_5 m = \log_5 16$

(A) 14
(B) 8
(C) $\dfrac{4}{5}$
(D) 256
(E) none of these