ALGEBRA II, 2ND EDITION
– ON-LINE TEST 28 –
REVISED: SEPTEMBER 2006

(This test covers material up to Lesson 112. Take this test after completion of Lesson 116.)

1. *Factor: $3x^2$ - 2x – 8 The two factors are in the general form: (d x + e)(x + f).*
   What is d x + e ?

(A) 2x - 9   (B) 3x + 3   (C) 3x + 9   (D) 3x + 4   (E) none of these

2. *The sum of the two digits of a positive integer is 12. When the digits were reversed, the new number was 54 greater than the original. What is the <u>product</u> of the digits of the original number <u>minus</u> the original number? (Hint: First solve for the original number.)*

(A) - 66   (B) -16   (C) -12   (D) - 40   (E) none of these

3. *Factor: $64a^{12}$ - m^3n^{12}*

(A) $(32a^6\text{-}m^{3/2}n^6)^2$ (B) $(4a^4\text{+}mn^4)(16a^8\text{-}4a^4mn^4\text{-}m^2n^8)$ (C) $(8a^4\text{-}mn^4)^3$

(D) $(4a^4\text{-}mn^4)(16a^8\text{+}4a^4mn^4\text{+}m^2n^8)$ (E) none of these

4. *Solve for x, y, z: {4x – y = 4} {y – 5z = –12} {5x + z = 19} Then evaluate: x + y + z =*

(A) $\dfrac{161}{3}$ (B) - 43   (C) 15   (D) 57   (E) none of these
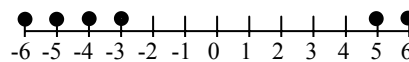
5. *Write $4.\overline{545}$ as a fraction of integers*

(A) $\dfrac{4541}{999}$ (B) $\dfrac{909}{200}$ (C) $\dfrac{450}{99}$ (D) $\dfrac{4545}{1000}$ (E) none of these

6. *Expand:* $(a^{1/2} + b^{1/2})^2$

(A) $a^{1/4}+b^{1/4}$ (B) $a+(ab)^{1/2}+b$ (C) $a+b$

(D) $a+2a^{1/2}b^{1/2}+b$ (E) none of these

7. *Which inequality is graphed on the number line at right ?   D = {Integers}*

(A) $x^2 - 3x + 5 > 0$ (B) $(x + 3)(x - 5) \geq 0$ (C) $x^2 + 2x - 15 \geq 0$

(D) $-3 < x < 5$ (E) none of these

8. *Find the number that is $\frac{1}{3}$ of the way from $2\frac{1}{6}$ to $5\frac{1}{4}$*

(A) $3\frac{7}{36}$ (B) $\frac{37}{12}$ (C) $\frac{21}{4}$ (D) $\frac{37}{36}$ (E) none of these

9. *Factor: $2x^2 + 11x + 12$ The two factors are in the general form: $(d\,x + e)(x + f)$. What is $d\,x + e$?*

(A) $2x + 3$ (B) $2x + 6$ (C) $2x + 12$ (D) $2x + 4$ (E) none of these

10. *Simplify: $\dfrac{2i^5 - 2i^2}{4i^3 - 1}$*

(A) $\dfrac{6}{17} + \dfrac{10i}{17}$ (B) $-\dfrac{3}{5} + \dfrac{i}{5}$ (C) $-\dfrac{10}{17} + \dfrac{6i}{17}$ (D) $-\dfrac{1}{5} + \dfrac{3i}{5}$ (E) none of these

11. *There are 60 nickels, dimes, and quarters totaling $7.20. If there are five times as many quarters as dimes, how many nickels are there ?*

(A) 20   (B) 4   (C) 9   (D) 36   (E) none of these

12. *Simplify:* $\left(\sqrt{\dfrac{4}{5}}+\sqrt{\dfrac{5}{4}}\right)\sqrt{200}$

(A) $9\sqrt{10}$ (B) $\sqrt{200}$ (C) $25\sqrt{10}$ (D) $\dfrac{9\sqrt{5}}{10}$ (E) none of these
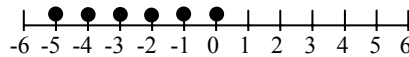
13. *The carbon (C) in the compound $C_3H_3Cl_5$ weighed 66 g. How much did the hydrogen (H) weigh ?*   *(C, 12; H, 1; Cl, 35)*

(A) 3.4 g   (B) 1.2 g   (C) 66 g   (D) 1.375 g   (E) none of these

14. *A dealer purchased an item for $ 600, marked it up (increased its price) $ 40 and sold it to a customer. What percent of the selling price was the markup ?*

(A) 6.25 %   (B) 66.7 %   (C) 7.14 %   (D) 6.67 %   (E) none of these

15. *Which inequality is graphed on the number line at right ? D = {Integers}*
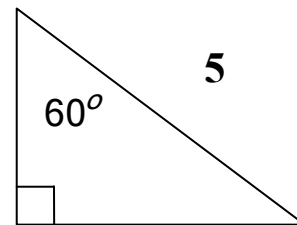
-6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6

(A) $x^2 - 5x < 0$ (B) $\varnothing$ (C) $x^2 + 5x \le 0$ (D) $(x-5)(x+0)\le 0$ (E) none of these

16. *Find B.*

(A) 2.5   (B) $5\sqrt{3}$ (C) $\dfrac{5\sqrt{2}}{2}$ **B** 60° **5**
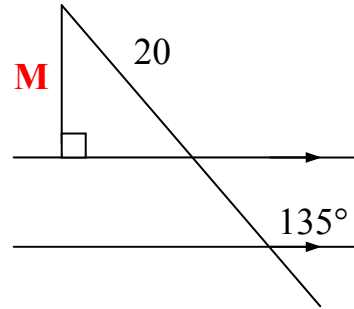
(D) $\dfrac{5\sqrt{3}}{2}$ (E) none of these

17. *Simplify:* $\sqrt[5]{x^3y^4}\sqrt[4]{x^5y^4}$

(A) $xy\sqrt[5]{x^3y^4}$ (B) $x^{\frac{3}{4}}y^{\frac{4}{5}}$ (C) $x^{\frac{37}{20}}y^{\frac{9}{5}}$ (D) $(xy)^{\frac{8}{20}}$ (E) none of these

18. *Find M*

(A) 10   (B) 16.383   (C) $10\sqrt{3}$

(D) $9\sqrt{2}$ (E) none of these

19. *Complete the square:* $y = x^2 - 6x - 16$

(A) $y = (x - 4)^2$ (B) $y = (x - 3)^2 - 16$ (C) $y = (x - 8)(x + 2)$

(D) $y = (x - 3)^2 - 25$ (E) none of these

20. *Find x*

(A) $42\dfrac{6}{7}$ (B) $43\dfrac{1}{3}$ (C) $36\dfrac{2}{3}$ (D) $46\dfrac{2}{3}$ (E) none of these