ALGEBRA Math 2 EOC Review

1. Solve:

   $(x^2 - 3x + 1)^2 - 4(x^2 - 3x + 1) - 5 = 0.$

2. Factor: $4x^2 - 16$

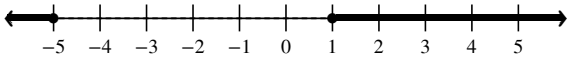
   A. $(2x - 4)^2$

   B. $4(x - 2)^2$

   C. $2(x + 2)(x - 2)$

   D. $4(x + 2)(x - 2)$

3. Which inequality has this graph for a solution?



   A. $|3 - x| \geq 1$

   B. $|x - 1| \geq 3$

   C. $|x - 1| \geq 2$

   D. $|x + 2| \geq 3$

4. Solve: $4x^2 - 64 = 0$

   A. $\{8, -8\}$

   B. $\{4, -4\}$

   C. $\{0, 8, -8\}$

   D. $\{4, 8, -8\}$

5. Reduce: $\dfrac{2x^2 - 8}{x^2 - 2x - 8}$. Identify the *numerator* of the reduced form.

   A. $x - 4$

   B. $2x - 4$

   C. $x - 2$

   D. $2x - 2$

6. The lengths of the sides of a triangle are $2x + 1$, $3x - 2$ and $4x - 5$. Express the perimeter of the triangle in terms of x.

   A. $9x - 6$

   B. $9x - 8$

   C. $9x + 10$

   D. $9x^2 + 10$

7. Find x^2y when $x = 3a - 4$ and $y = a^2$.

   A. $3a^5 - 4a^4$

   B. $6a^5 - 8a^4$

   C. $9a^6 - 24a^5 + 16a^4$

   D. $9a^4 - 24a^3 + 16a^2$

8. Solve: $\sqrt{2x} = 6$

   A. 6

   B. 18

   C. 36

   D. Ø

9. Simplify: $(3x^2 - 5x + 9) + (7x^2 + 8x - 15)$

   A. $10x^2 + 3x - 6$

   B. $10x^2 + 3x + 6$

   C. $10x^2 - 3x + 6$

   D. $10x^2 - 13x - 24$

10. If $9x^2 - 36x + Q$ is a perfect square, what is Q?

A. 36

B. 81

C. 16

D. 4

11. Which of the following equations could be used to solve this problem?

The product of two consecutive integers is 132.

A. $n + (n + 1) = 132$

B. $n + (n + 2) = 132$

C. $2n + 1 = 132$

D. $n(n + 1) = 132$

12. Solve: $x^2 - 49 = 0$

A. $\{-7, 7\}$

B. $\{1, 49\}$

C. $\{24, 25\}$

D. $\{-49, 49\}$

13. How many points of intersection are there between the graphs of $f(x) = -x^2 + 3$ and $g(x) = 1$?

A. 0

B. 1

C. 2

D. 4

14. How many terms are in the expression $8x^4 + 7xy^2 - 6$?

A. 3 terms

B. 4 terms

C. 5 terms

D. 6 terms

15. If $e(x) = f(x)$, solve: $e(x) = x - 2$
$f(x) = 4 - x$

A. $(3, 1)$

B. $(2, 2)$

C. $(0, 4)$

D. Ø

16. Which is a solution for the following system of equations?

$y = x^2$
$y = -4x + 12$

A. $(6, 36)$

B. $(-6, 24)$

C. $(-2, 4)$

D. $(2, 4)$

17. Which is a solution for the following system of equations?

$y = x^2$
$y = -2x + 15$

A. $(-3, 9)$

B. $(5, 25)$

C. $(3, 9)$

D. $(-5, 3)$

18. What is $x^2 - 11$ when $x = 2c + 5$?

A. $2(c^2 - 6c + 9)$

B. $2(2c + 10c - 7)$

C. $4(c^2 - 6c + 9)$

D. $(c^2 + 5c - 4)$

19. Simplify: $(j^a - k^{7b})^2$

A. $j^{2a} - 2j^a k^{7b} + k^{49b}$

B. $j^{2a} - 2j^a k^{7b} + k^{14b}$

C. $j^{2a} - k^{14b}$

D. $j^{2a} + k^{49b}$

20. Simplify:

$3x(2y + 5) - 2y(3x - 5) - 5(3x + 2)$.

The final result contains how many terms?

A. three

B. only two

C. just one

D. none

21. Solve: $x - \sqrt{5} = \sqrt{20}$

A. $3\sqrt{10}$

B. $2\sqrt{3}$

C. $3\sqrt{5}$

D. $2\sqrt{7}$

22. If $4x^2 - 20x + P$ is a perfect square, what is P?

A. 4

B. 16

C. 25

D. 100

23. What is the degree of the following expression?

$3a^3 + 7a^2 - 9a + 5$

A. 1

B. 3

C. 4

D. 5

24. Which part of the following problem should be worked first?

$$111 + \frac{33 + 87}{5} = 135$$

A. $111 + 33$

B. $33 \div 5$

C. $87 \div 5$

D. $33 + 87$

25. Factor completely: $12x^2 + 5xy - 28y^2$. Then, identify one of the following as an incomplete version of the correctly factored form.

A. $(\quad)(3x+\quad)$

B. $(4x+\quad)(\quad)$

C. $(\quad -7y)(\quad)$

D. $(\quad)(\quad -14y)$

26. Consider solving $n^2 + {-}9n - 4 = 0$ by completing the square.

$$n^2 + {-}9n + \_\_\_\_ = 4 + \_\_\_\_$$

What is the number that goes in the blanks?

A. $\frac{81}{2}$

B. $\frac{81}{4}$

C. $-\frac{81}{4}$

D. $-\frac{81}{2}$

27. $x^{2a} \cdot x^{2b}$ is equivalent to which expression?

A. x^{4ab}

B. $x^{a/b}$

C. x^{4a^b}

D. x^{2a+2b}

28. $\dfrac{x^a}{x^b}$ is equivalent to which expression?

A. x^{a-b}

B. x^{ab}

C. $x^{\frac{a}{b}}$

D. x^{b-a}

29. What should be added to both sides of the equation to complete the square for $3x^2 + 15x + 13 = 0$?

A. $\frac{1}{5}$

B. 5

C. $\frac{5}{2}$

D. $\frac{25}{4}$

30. Solve: $\sqrt{50} = n + \sqrt{2}$

A. $2\sqrt{2}$

B. $2\sqrt{3}$

C. $3\sqrt{5}$

D. $4\sqrt{2}$

31. Consider solving $x^2 + 14x + 3 = 0$ by completing the square. At which of the following equations will you arrive?

A. $(x + 7)^2 = 52$

B. $(x + 7)^2 = 46$

C. $(x - 7)^2 = 52$

D. $(x + 14)^2 = 193$

32. Complete the square: $p^2 + 6p + \_\_\_\_$

A. 36

B. 4

C. 6

D. 9

33. Simplify: $(2x^3 + 3x^2 - x - 5) - (x^3 - 2x^2 + 5x - 1)$

A. $x^3 + x^2 - 6x - 4$

B. $x^3 + 5x^2 + 4x - 6$

C. $x^3 - 5x^2 + 4x - 6$

D. $x^3 + 5x^2 - 6x - 4$

34. If $2x = y^4$, then $2y^8$ is equal to _____.

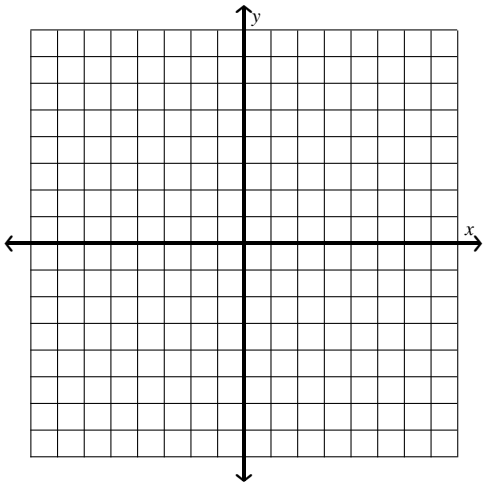
A. $2x^6$

B. $8x$

C. $8x^2$

D. $2x^4$

35. Graph $f(x) = 2x + 1$ and $g(x) = x + 1$. How many times do the two graphs intersect?



A. 0

B. 1

C. 2

D. 3

36. Simplify: $(4x^2 - 3x + 8) - (3x^2 - 5)$

A. $x^2 - 3x + 3$

B. $x^2 - 3x + 13$

C. $7x^2 - 3x - 3$

D. $7x^2 - 3x + 13$

37. What are the solutions of the equation $(y - 3)(y - 6) = 0$?

A. $y = -3$ and $y = 6$

B. $y = -2$ and $y = 0$

C. $y = 0$ and $y = 2$

D. $y = 3$ and $y = 6$

38. $\dfrac{9x^3y^8z}{7x^9y^2z^4}$ is best described as a(n):

A. variable

B. coefficient

C. expression

D. constant

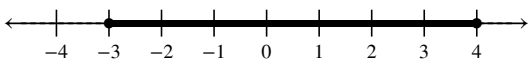
39. Solve: $-7 = \sqrt{\dfrac{a}{7}} - 10$

A. 63

B. 119

C. 2023

D. Ø

40. 

Which of the following inequalities represents the graph?

A. $-3 \geq x \geq 4$

B. $-3 < x < 4$

C. $-3 \leq x \leq 4$

D. $-3 > x > 4$

41. Factor completely: $(5x + 4)^2 - 25$

A. $(25x + 1)(x - 9)$

B. $(5x + 1)(5x - 9)$

C. $(5x + 1)(x - 25)$

D. $(5x - 1)(5x + 9)$

42. Which expression has 3 variables and 1 constant?

A. $(3a)(4b)2$

B. $5\dfrac{abc}{c}$

C. $\dfrac{4xy}{zq}$

D. $5x^3$

43. Solve: $\dfrac{4}{\sqrt{3y-5}} = \sqrt{3y-5}$

A. 2

B. 3

C. 4

D. 9

44. When factored correctly, $x^2 - 25 =$ _____ .

A. $(x+5)^2$

B. $(x+5)^{-2}$

C. $(x+5)(x-1)$

D. $(x-5)(x+5)$

45. The perimeter of a square is P. Which equation could be used to find its area (A)?

A. $A = P^2$

B. $A = \left(\dfrac{P}{4}\right)^2$

C. $A = 4P$

D. $A = \left(\sqrt{P}\right)^2$

46. The sum of the squares of two consecutive integers is 85. Using n to represent the smaller of the two consecutive integers, express this statement in algebraic form.

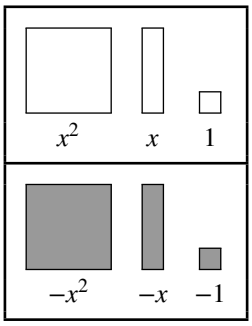
A. $n^2 + (n+1)^2 = 85$

B. $n^2 + 2(n+1) = 85$

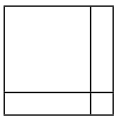
C. $2n^2 + (n+1)^2 = 85$

D. $n + (n+1) = 85^2$

47. Use this key to answer the following question(s).



The modeled form of $x^2 + 2x + 1$ is shown here:



What are the factors?

A. $(x-1)(x+1)$

B. $(x-1)^2$

C. $(x^2+1)^2$

D. $(x+1)^2$

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1.
Answer: $x = \{-1, 1, 2, 4\}$
Objective: A.SSE.1B

2.
Answer: D
Objective: A.SSE.3A

3.
Answer: D
Objective: A.CED.3

4.
Answer: B
Objective: A.REI.4B

5.
Answer: B
Objective: A.SSE.1A

6.
Answer: A
Objective: A.APR.1

7.
Answer: D
Objective: A.SSE.1B

8.
Answer: B
Objective: A.REI.2

9.
Answer: A
Objective: A.APR.1

10.
Answer: A
Objective: A.SSE.3B

11.
Answer: D
Objective: A.CED.1

12.
Answer: A
Objective: A.REI.4B

13.
Answer: C
Objective: A.REI.11

14.
Answer: A
Objective: A.SSE.1A

15.
Answer: A
Objective: A.REI.11

16.
Answer: D
Objective: A.REI.7

17.
Answer: C
Objective: A.REI.7

18.
Answer: B
Objective: A.SSE.1B

19.
Answer: B
Objective: A.SSE.3C

20.
Answer: B
Objective: A.SSE.1A

21.
Answer: C
Objective: A.REI.2

22.
Answer: C
Objective: A.SSE.3B

23.
Answer: B
Objective: A.SSE.1A

24.
Answer: D
Objective: A.REI.1

25.
Answer: B
Objective: A.SSE.3A

26.
Answer: B
Objective: A.REI.4A

27.
Answer: D
Objective: A.SSE.3C

28.
Answer: A
Objective: A.SSE.3C

29.
Answer: D
Objective: A.REI.4A

30.
Answer: D
Objective: A.REI.2

31.
Answer: B
Objective: A.REI.4A

32.
Answer: D
Objective: A.SSE.3B

33.
Answer: D
Objective: A.APR.1

34.
Answer: C
Objective: A.SSE.1B

35.
Answer: B
Objective: A.REI.11

36.
Answer: B
Objective: A.APR.1

37.
Answer: D
Objective: A.REI.4B

38.
Answer: C
Objective: A.SSE.1A

39.
Answer: A
Objective: A.REI.2

40.
Answer: C
Objective: A.CED.3

41.
Answer: D
Objective: A.SSE.1B

42.
Answer: B
Objective: A.SSE.1A

43.
Answer: B
Objective: A.REI.2

44.
Answer: D
Objective: A.SSE.3A

45.
Answer: B
Objective: A.CED.2

46.
Answer: A
Objective: A.CED.1

47.
Answer: D
Objective: A.SSE.3A