Keystone National High School Placement Exam **_Math Level II_**

1. Write an algebraic expression for the phrase. *the product of g and 4* a. 4g b. g + 4 c. $\frac{g}{4}$ d. g – 4	2. Write an algebraic expression for the phrase. –2 times the quantity *q* minus 3 a. $-2q - 3$ b. $q(-2 - 3)$ c. $\frac{-2}{q-3}$ d. $-2(q - 3)$
3. Evaluate the expression $(ab)^2$ for *a* = 4 and *b* = 3 a. 36 b. 24 c. 81 d. 144	4. Simplify the expression –9 + 6. a. 15 b. -3 c. -15 d. 3

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5. Simplify the expression $\frac{(-9)(-8)}{(-2)}$.

a. 36
b. -72
c. 72
d. -36

6. Simplify the expression $(-2.7)^0$.

a. 0
b. -1
c. 1
d. -2.7

7. Simplify the expression $\left(k^2\right)^4$.

a. k^6
b. $2k^8$
c. k^{16}
d. k^8

8. Simplify the expression $\frac{k^{14}}{k^7}$.

a. k^7
b. k^{98}
c. $\frac{1}{k^7}$
d. k^{21}

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9. Simplify the expression $[2 \cdot (10 + 5)] - 5$.

a. 12.5
b. 20
c. 25
d. 120

10. Evaluate $b - 2a - c$ for $a = -7$, $b = 3$, and $c = -7$.

a. 24
b. 3
c. 10
d. -18

11. Solve the equation $\frac{y}{4} = -10$.

a. -2 ½
b. -14
c. 40
d. -40

12. Solve the equation $\frac{3}{7}x + 6 = 9$.

a. 7
b. 1 2/7
c. -7
d. 7 2/3

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13. Solve the equation $3(y + 6) = 30$.

a. 5
b. 16
c. 4
d. -16

14. Find the x- and y-intercept of the line $2x + 3y = -18$.

a. x-intercept is 18; y-intercept is 18.
b. x-intercept is –6; y-intercept is –9.
c. x-intercept is 2; y-intercept is 3.
d. x-intercept is –9; y-intercept is –6.

15. Tell whether the lines for each pair of equations are *parallel*, *perpendicular*, or *neither*.

$7x - 4y = 4$
$x - 4y = 3$

16. Write the number in standard notation.
9×10^4.

a. 9,000
b. 90^4
c. 90,000
d. 360

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17. Between what two consecutive integers is $\sqrt{151}$?

a. 11 and 12
b. 14 and 15
c. 12 and 13
d. 9 and 10

18. Write 5^2 in standard form.

a. 7
b. 25
c. 10
d. 52

19. Simplify the expression

$$3\left[(15-3)^2 \div 4\right]$$

20. Simplify the expression $\sqrt{6}+2\sqrt{6}$.

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21. Simplify the expression $2k^8 \cdot 3k^3$.	22. Simplify the expression $\lvert -15 \rvert$.
23. Evaluate $47 + 2d$, for $d = 3$.	24. Write 0.63 as a percent.

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25. Write $3 \cdot 3 \cdot 3 \cdot 3 \cdot 3 \cdot 3$ using an exponent.	26. Solve the equation $z^2 - 6z - 27 = 0$ by factoring
27. Simplify $\sqrt{\frac{144}{49}}$.	28. Simplify the radical expression $\frac{4}{\sqrt{21}}$ by rationalizing the denominator.

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29. Simplify the radical expression $\sqrt{144}$.	30. Factor the expression $r^2 - 49$.
31. Factor the expression $x^2 - x - 42$.	32. Factor the expression $d^2 + 10d + 9$.

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33. Expand $(2x - 6)^2$	34. Simplify the product using FOIL $(3x - 7)(3x - 5)$.
35. Simplify the product $2n(n^2 + 3n + 4)$.	36. Simplify the product $-8(-9)$.

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37. Simplify the sum. $(4u^3 + 4u^2 + 2) + (6u^3 - 2u + 8)$.	38. Write the polynomial in standard form $4g - g^3 + 3g^2 - 2$.
39. Simplify the difference $(-7x - 5x^4 + 5) - (-7x^4 - 5 - 9x)$.	40. Write an equation in point-slope form for the line through the point (10,-9) with the given slope -2.

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41. Write an equation of a line with the slope of 1 and y-intercept of 4.	42. Find the slope and y-intercept of the line $y = \frac{4}{3}x - 3$.
43. State the slope of a horizontal line.	44. Find the slope of the line that passes through the pair of points (1, 7), (10, 1).

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45. Solve the inequality $c - 3 > 6$.	46. Solve the inequality $-\frac{x}{4} \leq 2$.
47. Solve the inequality $-8 \leq 2x - 4 < 4$.	48. Graph the function $y = x^2 - 2$.

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49. Graph the function $y = -2x + 3$.	50. Solve the equation $3p - 1 = 5(p - 1) - 2(7 - 2p)$.
51. Solve the equation $9d = -54$.	52. Solve the equation $-49 = x - 50$.

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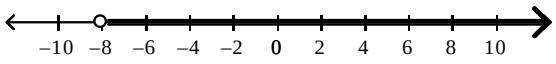
53. Solve the equation $14 = t + 7$.	54. Write an inequality for the graph  .

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