TOPIC 1

NAME _____ DATE _____

Assessment

For use with Topic 1: Numerical Expressions

Evaluate the expression.

1. $-6 - 4$
2. $16 + (-6)$
3. $(-5)(-8)$
4. $18 \div (-3)$
5. $(16)(-4)(2)$
6. $15 - (-15)$
7. $(9 - 5) \div 2$
8. $4^2 \div 8 - (7 + 4)$
9. $\frac{15 \cdot 6}{6^2 \div 2}$

Evaluate the expression.

10. $\frac{18}{25} - \frac{3}{25}$
11. $\frac{7}{12} + \frac{11}{18}$
12. $26 - 15.263$
13. $3\frac{3}{4} + \frac{9}{16}$
14. $36.5007 + 23.01$
15. $\frac{5}{8} \cdot \frac{2}{3}$
16. $(13.2)(2.33)$
17. $\frac{13}{24} \div \frac{6}{39}$
18. $20.784 \div 8.66$

Evaluate the expression.

19. $\sqrt{0}$
20. $\pm\sqrt{49}$
21. $-\sqrt{1}$
22. $\sqrt{-16}$
23. $\sqrt{25} + 2\sqrt{4}$
24. $\pm\sqrt{100}$

Approximate the square root.

25. $\sqrt{38}$
26. $-\sqrt{17}$
27. $\sqrt{44}$
28. $\sqrt{95}$
29. $\sqrt{156}$
30. $-\sqrt{236}$

Simplify the expression.

31. $\sqrt{20}$
32. $\sqrt{99}$
33. $\frac{1}{5}\sqrt{50}$
34. $4\sqrt{8} \cdot 2\sqrt{8}$
35. $\frac{\sqrt{12}}{\sqrt{16}}$
36. $\sqrt{\frac{3}{9}}$
37. $4\sqrt{3} - 7\sqrt{3}$
38. $13\sqrt{50} - 9\sqrt{32}$
39. $8\sqrt{2} + 2\sqrt{18}$
40. $-\frac{\sqrt{21}}{\sqrt{14}}$
41. $-\sqrt{\frac{5}{12}}$
42. $\frac{\sqrt{18}}{2} + \frac{3}{\sqrt{2}}$

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TOPIC 2

NAME _____ DATE _____

Assessment

For use with Topic 2: Algebraic Expressions

Evaluate the expression when $x = -2$, $y = 3$, and $z = -1$.

1. $2(x - y)^2$
2. $\frac{3y^2}{z}$
3. $0.4z(2y + x)$
4. $\left(\frac{x + z}{y}\right)^{-2}$

Simplify the expression.

5. $4x^2 + 2 - x^2$
6. $5(2x - 4) + 3(-3x + 7)$
7. $(-x^2 + x + 2) + (3x^2 + 4x + 5)$
8. $(x^2 + 3x - 1) - (4x^2 - 5x + 6)$
9. $(x^3 + 5x^2 - 4x) - (3x^2 - 6x + 2)$
10. $(4x^3 + x^2 - 1) + (2 - x - x^2)$

Simplify the expression, if possible. Write your answer as a power.

11. $2^3 \cdot 2^6$
12. $(5^3)^2$
13. $(3a)^3 \cdot (2a)^2$
14. $(w^4x^4y)^2 \cdot (wx^3y^3)^2$

Evaluate the expression. Write your answer as a fraction in simplest form.

15. 5^{-1}
16. $6^{-2} \cdot 6^{-5}$
17. $4\left(\frac{1}{2}\right)^{-1}$
18. $(-5)^0 \cdot \left(\frac{1}{3^{-2}}\right)$
19. $\frac{4^3}{4^2}$
20. $\frac{7^2}{7^{-1}}$
21. $\left(-\frac{2}{3}\right)^2$
22. $\left(\frac{7}{5}\right)^{-1}$

Simplify the expression. The simplified expression should have no negative exponents.

23. $\frac{x^{10}}{x^3}$
24. $\left(\frac{y^7}{y^2}\right)^4$
25. $\frac{(z^3)^5}{(z^3)^7}$
26. $\left(\frac{-12a^3b}{4ab}\right)^4$
27. $\left(\frac{16a^5b^3}{-4a^3b^2}\right)^2$
28. $\frac{32a^4b^{-2}}{2a^3b^3} \cdot \frac{3a^2b^7}{-2a}$
29. $\frac{9x^{-3}y^6}{x^4y^{-5}} \cdot \frac{(3x^2y)^{-2}}{xy^3}$

Find the product.

30. $(-x)(8x^3 - 12x^2)$
31. $4x^3(-x^2 + 2x - 7)$

Rewrite the number in scientific notation.

32. 436,000,000
33. 0.00638
34. 0.000000025

Evaluate the expression. Write the result in scientific notation.

35. $(5 \times 10^3) \cdot (3.2 \times 10^{-1})$
36. $\frac{1.8 \times 10^{-7}}{7.2 \times 10^3}$
37. $(4 \times 10^{-2})^{-2}$

38. ***Geometry*** The volume of a cube is given by $V = s^3$, where s is the length of a side. The cube has a side of length $4a$. What is the volume of the cube in terms of a?