Algebra B
Chapter 8 Review

Name _____

7:30–7:47

Multiple Choice:

1. Which expression is equivalent to $-256x^{18}$?

(A) $(-4x^3)^4 \cdot x^4$ (B) $-16x^3 \cdot (4x^{10})^2$

(C) $(-4x^4)^3(2x^3)^2$ (D) $8x^8 \cdot 2x^8$

(E) $(-8x)^2(-4x^5)^2$

$-64x^{12} \cdot 4x^6$

$-256x^{18}$

4. Which expression is equivalent to $\left(\frac{3x^4}{4y}\right)^3 \cdot \frac{2y}{x^5}$?

(A) $\frac{27x^7}{32y^2}$ (B) $\frac{27x^7}{64y^3}$

(C) $\frac{27x^2}{32y^2}$ (D) $\frac{27x^2}{64y^2}$

(E) $\frac{27x^7}{2}$

$\frac{27x^{12}}{64y^3} \cdot \frac{2y}{x^5}$

$\frac{54x^{12}y}{64x^5y^3}$

$\frac{27x^7}{32y^2}$

8. Which expression is equivalent to $-(-5 \cdot 2^2 \cdot 2^0)^{-2}$?

(A) -80 (B) -40

(C) $-\frac{1}{40}$ (D) $-\frac{1}{400}$

$\frac{(-5)^{-2}2^{-4}}{1} = \frac{1}{25 \cdot 16} = \frac{1}{400}$

5. Which expression is equivalent to $(-5x^{-3}y^4)^{-2}$?

(A) $-\frac{y^2}{25x^5}$ (B) $\frac{x^6}{25y^8}$ (C) $\frac{x^6}{5y^8}$

(D) $\frac{25x^6}{y^8}$ (E) $-\frac{x^6}{25y^8}$

$(-5)^{-2}x^6y^{-8}$

$\frac{x^6}{25y^8}$

8. Which number is the value of $(4.5 \times 10^{-8})(8.6 \times 10^4)$?

(A) 3.87×10^{-6} (B) 0.387×10^{-4}

(C) 0.387×10^{-3} (D) 3.87×10^{-3}

(E) 3.87×10^3

38.7×10^{-4}

$3.87 \times 10^1 \times 10^{-4} = 3.87 \times 10^{-3}$

7. Which number is the greatest?

(A) 5.3×10^{-6} (B) 9.5×10^{-2}

(C) 0.039 3.9×10^{-2} (D) 3.9×10^{-6}

(E) 0.00053 5.3×10^{-4}

7. Describe and correct the error you see in the work below for simplifying $\frac{(2x^3)^{-2}}{x^0}$

$x^0 = 1$;

$= \frac{2x^{-6}}{1}$

-2 exponent applies to the 2 as well:

$= \frac{2}{x^6}$

$\frac{2^{-2}x^{-6}}{x^0} = \frac{1}{4x^6}$

8. Describe and correct the error you see in the work below for simplifying $\frac{1}{(3x^{-2}y^{-4})^2}$

$= 3^2x^{-4}y^{-8}$

Forgot the $\frac{1}{\quad}$;

$= \frac{9}{x^4y^8}$

$\frac{1}{3^2x^{-4}y^{-8}} = \frac{x^4y^8}{9}$

Completely simplify each expression using only positive exponents.

1. $6^{-7} \cdot 6 \cdot 6^{6}$

$6^0 = 1$

2. $(3^4)^2$

6561

3. $(5x)^3$

$125x^3$

4. $\left[(b+2)^8\right]^3$

$(b+2)^{24}$

5. $(-2x^2)^3$

$-8x^6$

6. $(3s^3)^2 \cdot (-2s^3)^4$

$144s^{18}$

7. $\frac{4^6 \cdot 4^2}{4^3} = 4^5$

1024

8. $7^9 \cdot \left(\frac{1}{7}\right)^4 = 7^5$

16,807

9. $\left(\frac{6x^9}{3y^4}\right)^2$

$\frac{4x^{18}}{y^{18}}$

10. $\left(\frac{4y^5}{3}\right)^3 \cdot \frac{1}{y^6}$

$\frac{64y^9}{27}$

11. $\left(\frac{2}{c^2}\right)^3 \cdot \left(\frac{3c^4}{d^2}\right)^4$

$\frac{648c^{10}}{d^8}$

12. 3^{-4}

$\frac{1}{81}$

13. $(7wz)^0$

1

14. $4^{-5} \cdot 4^3$

$\frac{1}{16}$

15. $\left(\frac{1}{2}\right)^{-3}$

8

16. $\frac{1}{2^{-5}}$

32

17. $(3n^{-2})^{-3}$

$\frac{n^6}{27}$

18. $10b^{-3}c^5$

$\frac{10c^5}{b^3}$

19. $\frac{2x^{-4}}{y^3}$

$\frac{2}{x^4y^3}$

20. $\frac{(2x)^{-4} \cdot y^5}{x^3 \cdot y^{-2}}$

$\frac{y^7}{16x^7}$

If the number is written in scientific notation, write it in standard form.
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21. 0.000359

3.59×10^{-4}

22. 9.0001×10^3

9000.1

23. 1.67×10^{-4}

0.000167

Evaluate the expression. Write your answer in scientific notation.

24. $\frac{3 \times 10^2}{8 \times 10^6}$

3.75×10^{-5}

25. $(8.5 \times 10^{10})(3.7 \times 10^{-5})$

3.145×10^6

26. $(2.4 \times 10^{-2})^4$

3.31776×10^{-7}