1. Simplify, leaving your answer free of negative exponents.

$$\frac{x^4 y^{-5} z^{-3}}{x^{-1} y^2 z}$$

A. $\frac{x^4}{y^7 z^4}$

B. $\frac{x^5 y}{z}$

C. $\frac{x^5}{y^7 z^4}$

D. $\frac{x^3 z^2}{y^3}$

E. $\frac{x^3}{y^3 z^2}$

1. Use the rules of exponents to simplify and then calculate the result.

$$\frac{(7^4)^2}{7^0 7^6}$$

A. 49

B. 7

C. $\frac{1}{7}$

D. 1

E. $\frac{1}{49}$

1. Simplify. $\dfrac{\frac{5}{6}-\frac{1}{2}}{\frac{3}{4}+\frac{2}{3}}$

A. $\frac{17}{36}$

B. $\frac{2}{17}$

C. $\frac{7}{5}$

D. $\frac{4}{17}$

E. $\frac{4}{5}$

1. Find the least common multiple (LCM) of 105 and 126.

A. 3 7 11

B. 2 3 3 3 5 7 7

C. 2 3 3 5 7

D. 2 2 3 3 7

E. 2 3 5 7

1. Change $0.7\overline{21}$ to a fraction in lowest terms.

A. $\frac{721}{1000}$

B. $\frac{119}{495}$

C. $\frac{721}{100}$

D. $\frac{119}{165}$

E. $\frac{714}{1000}$

1. Which of the following sets of numbers is ordered from greatest to least?

A. $\frac{8}{9},\frac{1}{5},-\frac{1}{3},-\frac{1}{7}$

B. $\frac{1}{5},\frac{8}{9},-\frac{1}{3},-\frac{1}{7}$

C. $-\frac{1}{3},\frac{1}{5},\frac{1}{7},\frac{8}{9}$

D. $\frac{8}{9},\frac{1}{5},-\frac{1}{7},-\frac{1}{3}$

E. $\frac{8}{9},-\frac{1}{7},\frac{1}{5},-\frac{1}{3}$

1. Write the following inequality without the absolute value symbol and solve.

$|x-3| \le 1.5$

A. $1.5 \le x \le 3$

B. $x \le 4.5$

C. $x \ge 3$

D. $3 \le x \le 4.5$

E. $1.5 \le x \le 4.5$

1. Carry out the indicated operation and write the answer in the form $a+bi$. $(4-7i)-(-6+5i)$

A. $-2-12i$

B. $2-12i$

C. $-2-2i$

D. $10-12i$

E. $10-2i$

9. Carry out the indicated operation and write the answer in the form $a+bi$.

$$\frac{2+3i}{4+i}$$

A. $\frac{5}{15}+\frac{14}{15}i$

B. $\frac{8}{17}+\frac{10}{17}i$

C. $\frac{1}{2}+3i$

D. $\frac{11}{5}+\frac{10}{5}i$

E. $\frac{11}{17}+\frac{10}{17}i$

10. Express this quantity in algebraic symbols. The area of a triangle whose height is three times the length of its base, y.

A. $3y^2$

B. $\frac{3}{2}y$

C. 3y

D. $\frac{1}{2}y^2$

E. $\frac{3}{2}y^2$

11. Express as an algebraic equation in x. Twenty-seven percent of a number added to that number is 108.22.

A. $27x = 108.22$

B. $.27x + x = 108.22$

C. $x + 108.22 = 27$

D. $27 + x = 108.22$

E. $27x + x = 108.22$

12. Calculate, leaving your answer in scientific notation.
$(8.3\times10^{4})(6.0\times10^{-7})$

A. 4.98×10^{-4}

B. 4.98×10^{-2}

C. 49.8×10^{-28}

D. 4.98×10^{-27}

E. 4.98×10^{-3}

13. Perform the indicated operation and simplify.
$\left(\frac{3}{4}x-\frac{1}{3}\right)\div\left(\frac{1}{2}x+1\right)$

A. $\frac{1}{4}x-\frac{4}{3}$

B. $\frac{3}{2}x+\frac{2}{3}$

C. $\frac{1}{4}x+\frac{2}{3}$

D. $\frac{1}{4}x + \frac{4}{3}$

E. $\frac{3}{2}x - \frac{4}{3}$

14. Perform the indicated operation and simplify.
$\left(a^4 + 7b^3\right)\left(a^4 - 7b^3\right)$

A. $a + 49b^6$

B. $a^{16} - 49b^9$

C. $a^{16} + 49b^9$

D. $a^8 - 49b^6$

E. $a^8 - 14b^6$