Sample Test 1

Name_____

In the real test you will have 10 questions and the following rules:

You have 75 minutes to complete the test below. The usage of books or notes, or communication with other students is not allowed. Ask me if you have questions.

This is a multiple choice test.You do not have to justify your answer. If , however, you are not sure that your selection is correct, put a star (*) in front of the question number, and include your calculations on an attached sheet. **I will look at an attached calculation only if I see a star in front of the question number.**
–If you mark an incorrect answer but your calculations contain only minor mistakes, you will get up to 75% credit for the problem.
–Beware: if you instruct me to look at a severely incorrect calculation, you will lose at least 50% of the credit, **even if by chance you mark the correct answer**. *(No credit is given for an incorrect answer and totally incorrect calculations.)*
You get full credit if you mark the correct answer, and mark no star, or if you mark the correct answer, express doubt by marking a star, but I find your calculations perfectly correct.

Express the number in scientific notation.

1) 358.105

A) 3.58105×10^{-2} B) 3.58105×10^{1} C) 3.58105×10^{2} D) 3.58105×10^{-1}

The following question is a bit harder than what you can expect on the test.
Factor by grouping.

2) $12a^3 - 8a^2b + 15ab^2 - 10b^3$

A) $(4a^2 + 5b)(3a - 2b)$ B) $(4a^2 - 5b^2)(3a + 2b)$ C) $(4a^2 + 5b^2)(3a - 2b)$ D) $(12a^2 + 5b^2)(a - 2b)$

Factor as completely as possible. If unfactorable, indicate that the polynomial is prime.

3) $x^2 + 12x + 36$

A) $(x + 6)(x - 6)$ B) Prime C) $(x + 6)^2$ D) $(x - 6)^2$

4) $15x^2 + 16x + 4$

A) $(15x + 2)(x + 2)$ B) $(3x + 2)(5x + 2)$ C) $(3x - 2)(5x - 2)$ D) Prime

Multiply. Simplify if possible.

5) $\dfrac{k^2 + 7k + 10}{k^2 + 13k + 40} \cdot \dfrac{k^2 + 8k}{k^2 + 7k + 10}$

A) $\dfrac{1}{k + 5}$ B) $\dfrac{k^2 + 8k}{k + 5}$ C) $\dfrac{k}{k^2 + 13k + 40}$ D) $\dfrac{k}{k + 5}$

Divide. Simplify if possible.

6) $\dfrac{z^2 + 11z + 18}{z^2 + 12z + 27} \div \dfrac{z^2 + 2z}{z^2 - 2z - 15}$

A) $z - 5$ B) $\dfrac{z}{z^2 + 12z + 27}$ C) $\dfrac{z - 5}{z^2 + 3z}$ D) $\dfrac{z - 5}{z}$

Perform the indicated operation and simplify.

7) $\frac{x}{x^2 - 16} - \frac{6}{x^2 + 5x + 4}$

A) $\frac{x^2 - 5}{(x - 4)(x + 4)(x + 1)}$ B) $\frac{x^2 - 5x + 24}{(x - 4)(x + 4)(x + 1)}$ C) $\frac{x^2 - 5x + 24}{(x - 4)(x + 4)}$ D) $\frac{x^2 + 5x + 24}{(x - 4)(x + 4)(x + 1)}$

Rationalize the denominator.

8) $\frac{5}{8 - \sqrt{2}}$

A) $\frac{5}{8} - \frac{5}{\sqrt{2}}$ B) $\frac{40 + 5\sqrt{2}}{-6}$ C) $\frac{40 + 5\sqrt{2}}{62}$ D) $\frac{40 - 5\sqrt{2}}{62}$

Simplify the radicals and combine any like terms. Assume all variables represent positive real numbers.

9) $-4\sqrt{7} - 3\sqrt{28}$

A) $6\sqrt{7}$ B) $-7\sqrt{7}$ C) $10\sqrt{7}$ D) $-10\sqrt{7}$

Solve the equation.

10) $4(y + 8) = 5(y - 4)$

A) −12 B) 52 C) 12 D) −52

11) $7x + 2 + 9x + 2 = 4x + 12x + 1$

A) 288 B) 0 C) All real numbers D) No solution

12) $6(x + 3) = (6x + 18)$

A) 36 B) All real numbers C) 0 D) No solution

Solve the problem.

13) The manager of a coffee shop has one type of coffee that sells for $6 per pound and another type that sells for $14 per pound. The manager wishes to mix 30 pounds of the $14 coffee to get a mixture that will sell for $12 per pound. How many pounds of the $6 coffee should be used?

A) 10 pounds B) 40 pounds C) 20 pounds D) 5 pounds

14) During a hurricane evacuation from the east coast of Georgia, a family traveled 260 miles west. For part of the trip, they averaged 50 mph, but as the congestion got bad, they had to slow to 10 mph. If the total time of travel was 6 hours, how many miles did they drive at the reduced speed?

A) 20 miles B) 5 miles C) 15 miles D) 10 miles

Solve the equation.

15) $|b + 9| - 3 = 6$

A) {0, 18} B) {−18, 0} C) {0} D) No solution

16) $|7f + 3| + 7 = -1$

A) No solution B) $\{\frac{5}{7}, \frac{11}{7}\}$ C) $\{-\frac{11}{7}\}$ D) $\{-\frac{11}{7}, -\frac{5}{7}\}$

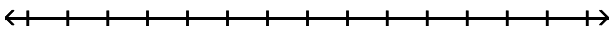
Using the variable x, write each interval as an inequality.

17) $[-6, 4)$

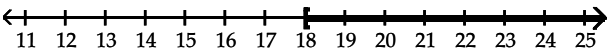
A) $-6 < x \leq 4$ B) $-6 \leq x \leq 4$ C) $-6 \leq x < 4$ D) $x < 4$

Solve the inequality. Graph the solution set.

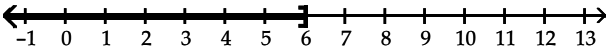
18) $10n + 12 \leq 2(4n + 12)$



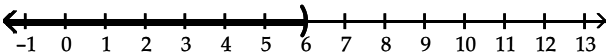
A) $[-\infty, 18)$



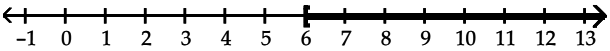
B) $(-\infty, 6]$



C) $(-\infty, 6)$



D) $[6, \infty)$



The actual test questions may be a bit harder than the following ones.
Solve the inequality.

19) $|g + 9| < 5$

A) $-14 < g < -4$ B) $-14 < g < 4$ C) $-14 > g > -4$ D) No solution

20) $|x - 9| > 1$

A) $(10, \infty)$ B) $(8, 10)$ C) No solution D) $(-\infty, 8) \cup (10, \infty)$

Answer Key
Testname: STEST1.TST

1) C
2) C
3) C
4) B
5) D
6) D
7) B
8) C
9) D
10) B
11) D
12) B
13) A
14) D
15) B
16) A
17) C
18) B
19) A
20) D