

Sample Test 1

Name _____

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

You have 50 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.

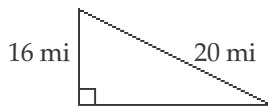
-If you mark an incorrect answer but your calculations contain only minor mistakes, you will get up to 75% credit for the problem.

-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.

Find the missing length or lengths in the right triangle. If necessary, round to the nearest tenth.

1)



A) 144 mi

B) 18 mi

C) 72 mi

D) 12 mi

Express the number in scientific notation.

2) 20.433

A) 2.0433×10^{-1}

B) 2.0433×10^2

C) 2.0433×10^1

D) 2.0433×10^{-2}

Perform the division.

3) $\frac{p^2 + 2p - 18}{p + 6}$

A) $p - 4$

B) $p - 4 + \frac{6}{p + 6}$

C) $p - 6 + \frac{4}{p + 6}$

D) $p + 4 + \frac{6}{p + 6}$

Factor by grouping.

4) $30a^3 - 25a^2b - 12ab^2 + 10b^3$

A) $(5a^2 - 2b)(6a - 5b)$

B) $(5a^2 + 2b^2)(6a + 5b)$

C) $(5a^2 - 2b^2)(6a - 5b)$

D) $(30a^2 - 2b^2)(a - 5b)$

Perform the indicated operation and simplify.

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

A) $\frac{x^2 - 3}{(x - 4)(x + 4)(x + 1)}$

B) $\frac{x^2 - 3x + 16}{(x - 4)(x + 4)(x + 1)}$

C) $\frac{x^2 - 3x + 16}{(x - 4)(x + 4)}$

D) $\frac{x^2 + 3x + 16}{(x - 4)(x + 4)(x + 1)}$

Use rational exponents to write as a single radical expression.

6) $\sqrt[4]{4} \cdot \sqrt{5}$

A) $\sqrt[8]{10,000}$

B) $\sqrt[8]{2500}$

C) $\sqrt[8]{20}$

D) $\sqrt[4]{20}$

Solve the equation.

7) $4(y + 7) = 5(y - 4)$

A) -8

B) 48

C) 8

D) -48

Solve the problem.

8) Using a phone card to make a long distance call costs a flat fee of \$0.16 plus \$0.23 per minute starting with the first minute. After writing an equation for this situation, how many minutes did a phone call last in which the total charge was \$2.46?

A) 7 minutes

B) 16 minutes

C) 10 minutes

D) 19 minutes

9) Don James wants to invest \$50,000 to earn \$4400 per year. He can invest in B-rated bonds paying 12% per year or in a Certificate of Deposit (CD) paying 4% per year. How much money should be invested in each to realize exactly \$4400 in interest per year?

A) \$19,000 in B-rated bonds and \$31,000 in a CD

B) \$31,000 in B-rated bonds and \$19,000 in a CD

C) \$20,000 in B-rated bonds and \$30,000 in a CD

D) \$30,000 in B-rated bonds and \$20,000 in a CD

Solve the equation.

10) $6m^2 - 3m = 0$

A) $\left\{-\frac{1}{2}, 0\right\}$ B) $\left\{\frac{1}{2}, -\frac{1}{2}\right\}$

C) {0}

D) $\left\{\frac{1}{2}, 0\right\}$ **Solve by completing the square.**

11) $9b^2 + 36b + 35 = 0$

A) $\left\{-\frac{5}{3}, -\frac{7}{3}\right\}$ B) $\left\{\frac{5}{3}, \frac{7}{3}\right\}$ C) $\left\{-\frac{7}{3}, \frac{14}{3}\right\}$ D) $\left\{-\frac{5}{9}, -\frac{7}{9}\right\}$ **Use the quadratic formula to solve the equation.**

12) $5r^2 + 22r = -14$

A) $\left\{\frac{-22 \pm \sqrt{51}}{5}\right\}$ B) $\left\{\frac{-11 \pm \sqrt{51}}{10}\right\}$ C) $\left\{\frac{-11 \pm \sqrt{51}}{5}\right\}$ D) $\left\{\frac{-11 \pm \sqrt{191}}{5}\right\}$ **Solve the equation.**

13) $\sqrt{5q - 4} = 4$

A) {16}

B) $\left\{\frac{12}{5}\right\}$

C) {4}

D) $\left\{\frac{16}{5}\right\}$

14) $\sqrt{3x + 1} = 3 + \sqrt{x - 4}$

A) No solution

B) {5, 8}

C) {-1}

D) {-5, -8}

15) $(-8p + 3)^2 = -10(-8p + 3) - 21$

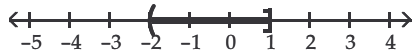
A) {-7, -3}

B) $\left\{\frac{1}{2}, 0\right\}$ C) $\left\{1\frac{1}{4}, \frac{3}{4}\right\}$ D) $\left\{-1\frac{1}{4}, -\frac{3}{4}\right\}$

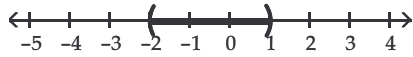
Write each expression in interval notation. Graph each interval.

16) $-2 < x \leq 1$

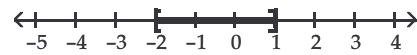
A) $(-2, 1]$



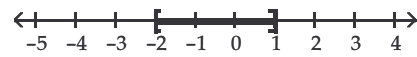
C) $(-2, 1)$



B) $[-2, 1]$



D) $[-2, 1)$

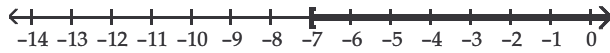


Solve the inequality. Graph the solution set.

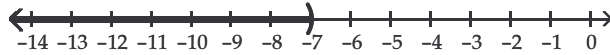
17) $-28r - 16 \leq -4(6r - 3)$



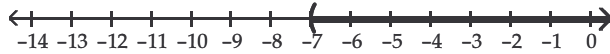
A) $[-7, \infty)$



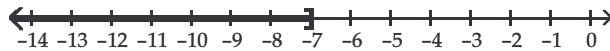
B) $(-\infty, -7)$



C) $(-7, \infty)$



D) $(-\infty, -7]$



18) $-8r - 6 \leq -2(3r + 10)$



A) $(-\infty, 7]$



B) $[7, \infty)$



C) $(-\infty, 7)$



D) $(7, \infty)$



Answer Key

Testname: STEST1.TST

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