

Print Name _____

SHOW YOUR WORK. Complete the problem in the space provided. Circle your final answer. Show work for possible partial credit.

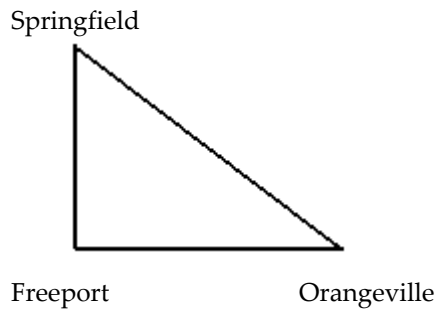
Solve.

1) $8x = \sqrt{1 - 12x}$

2) $\sqrt{x - 2} = 4$

- 3) The hypotenuse of an isosceles right triangle is 7 feet longer than either of its legs. Find the exact length of each side.

- 4) Because of the increase in traffic between Springfield and Orangeville, a new road was built to connect the two towns. The old road goes south x miles from Springfield to Freeport and then goes east $x + 3$ miles from Freeport to Orangeville. The new road is 9 miles long and goes straight from Springfield to Orangeville. Find the number of miles that a person saves by driving the new road over the old one.



Solve the equation by completing the square.

5) $x^2 - 14x + 13 = 0$

Use the quadratic formula to solve the equation.

6) $2x^2 + 10x = -1$

Multiply or divide.

$$7) \frac{\sqrt{4}}{\sqrt{-5}}$$

Use the quadratic formula to solve the equation.

$$8) x(x + 6) = 1$$

Perform the indicated operation. Write the result in the form $a + bi$.

$$9) \frac{7 - 9i}{4 + i}$$

Use the square root property to solve the equation.

$$10) (4x - 1)^2 = \frac{4}{16}$$

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question. Write your answer in the blank provided and record your answer on the scantron answer sheet. (You will not be getting the scantron answer sheet back.) If a question appears to not have instructions, the instructions for the previous question apply. A specific method of solving an equation may be given but you can use any method you choose. Good luck and have fun!

Solve.

- 11) Two pipes can be used to fill a pool. Working together, the two pipes can fill the pool in 8 hours. 11) _____
The larger pipe can fill the pool in 3 hours less time than the smaller pipe can alone. Find the time to the nearest tenth of an hour it takes for the smaller pipe working alone to fill the pool.

A) 14.7 hr

B) 17.6 hr

C) 17.7 hr

D) 14.6 hr

Fill in the blank.

- 12) The process of writing a radical expression as an equivalent expression but without a radical in the denominator is called _____ the denominator. 12) _____

A) rationalizing

B) like radicals

C) principal square root

D) conjugate

13) The _____ of $\sqrt{3} + 2$ is $\sqrt{3} - 2$.

13) _____

A) radicand

B) index

C) conjugate

D) imaginary unit

Fill in the blank .

14) The _____ helps us find the number and type of solutions of a quadratic equation.

14) _____

A) quadratic formula

B) discriminant

C) quadratic

D) completing the square

Use the square root property to solve the equation.

15) $x^2 = 23$

15) _____

A) $-\sqrt{23}, \sqrt{23}$

B) $\sqrt{23}$

C) $\frac{23}{2}$

D) 529

Use the quadratic formula to solve the equation.

16) $x^2 - 12x + 40 = 0$

16) _____

A) $6 - 2i, 6 + 2i$

B) 4, 8

C) $6 + 2i$

D) $6 - 4i, 6 + 4i$

Multiply or divide.

17) $\sqrt{100} \cdot \sqrt{-1}$

17) _____

A) -10

B) 10

C) -10i

D) 10i

Find two possible missing terms so that the expression is a perfect square trinomial.

18) $x^2 + \underline{\hspace{1cm}} + \frac{1}{4}$

18) _____

A) -2x, 2x

B) $-\frac{1}{2}x, \frac{1}{2}x$

C) $-\frac{1}{2}, \frac{1}{2}$

D) -x, x

Find the power of i.

19) i^{30}

19) _____

A) $-i$

B) -1

C) 1

D) i

Write in terms of i.

20) $\sqrt{-169}$

20) _____

A) ± 13

B) $13i$

C) $-i\sqrt{13}$

D) $-13i$

Answer Key

Testname: 16B_GRPREVASS_106_113

1) $\frac{1}{16}$

Objective: (11.3) Solve various equations that are quadratic in form.

2) 18

Objective: (10.6) Solve equations that contain radical expressions.

3) $(7 + 7\sqrt{2})$ ft, $(7 + 7\sqrt{2})$ ft, $(14 + 7\sqrt{2})$ ft

Objective: (11.2) Solve problems modeled by quadratic equations.

4) $(3\sqrt{17} - 9)$ mi

Objective: (11.2) Solve problems modeled by quadratic equations.

5) 13, 1

Objective: (11.1) Solve quadratic equations by completing the square.

6) $\frac{-5 - \sqrt{23}}{2}$, $\frac{-5 + \sqrt{23}}{2}$

Objective: (11.2) Solve quadratic equations by using the quadratic formula.

7) $\frac{-2i\sqrt{5}}{5}$

Objective: (10.7) Write square roots of negative numbers in the form bi.

8) $-3 - \sqrt{10}$, $-3 + \sqrt{10}$

Objective: (11.2) Solve quadratic equations by using the quadratic formula.

9) $\frac{19}{17} - \frac{43}{17}i$

Objective: (10.7) Divide complex numbers.

10) $\frac{3}{8}$, $\frac{1}{8}$

Objective: (11.1) Use the square root property to solve quadratic equations.

11) B

Objective: (11.3) Solve problems that lead to quadratic equations.

12) A

Objective: (10.8) Vocabulary Check

13) C

Objective: (10.8) Vocabulary Check

14) B

Objective: (11.7) Vocabulary Check

15) A

Objective: (11.1) Use the square root property to solve quadratic equations.

16) A

Objective: (11.2) Solve quadratic equations by using the quadratic formula.

17) D

Objective: (10.7) Write square roots of negative numbers in the form bi.

18) D

Objective: (11.1) Concept Extensions

19) B

Objective: (10.7) Raise i to powers.

20) B

Objective: (10.7) Write square roots of negative numbers in the form bi.