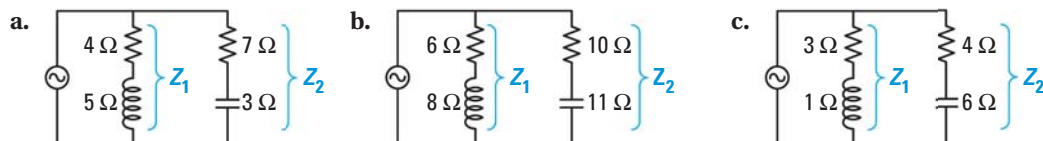


74. **TAKS REASONING** Evaluate $\sqrt{-4} \cdot \sqrt{-25}$ and $\sqrt{100}$. Does the rule $\sqrt{a} \cdot \sqrt{b} = \sqrt{ab}$ on page 266 hold when a and b are negative numbers?

75. **PARALLEL CIRCUITS** In a *parallel circuit*, there is more than one pathway through which current can flow. To find the impedance Z of a parallel circuit with two pathways, first calculate the impedances Z_1 and Z_2 of the pathways separately by treating each pathway as a series circuit. Then apply this formula:

$$Z = \frac{Z_1 Z_2}{Z_1 + Z_2}$$

What is the impedance of each parallel circuit shown below?



76. **CHALLENGE** *Julia sets*, like the Mandelbrot set shown on page 281, are fractals defined on the complex plane. For every complex number c , there is an associated Julia set determined by the function $f(z) = z^2 + c$.

For example, the Julia set corresponding to $c = 1 + i$ is determined by the function $f(z) = z^2 + 1 + i$. A number z_0 is a member of this Julia set if the absolute values of the numbers $z_1 = f(z_0)$, $z_2 = f(z_1)$, $z_3 = f(z_2)$, \dots are all less than some fixed number N , and z_0 is not a member if these absolute values grow infinitely large.



A Julia set

Tell whether the given number z_0 belongs to the Julia set associated with the function $f(z) = z^2 + 1 + i$.

- a. $z_0 = i$ b. $z_0 = 1$ c. $z_0 = 2i$ d. $z_0 = 2 + 3i$



MIXED REVIEW FOR TAKS

TAKS PRACTICE at classzone.com

REVIEW

Skills Review
Handbook p. 998;
TAKS Workbook

77. **TAKS PRACTICE** There are 185 students in this year's freshman class. What additional information is needed to predict the number of students in next year's freshman class? **TAKS Obj. 10**

- (A) The rate of change in the number of students in the freshman class
(B) The number of females in this year's freshman class
(C) The number of students in this year's senior class
(D) The maximum number of students in the school

REVIEW

Lesson 2.4;
TAKS Workbook

78. **TAKS PRACTICE** What are the slope m and y -intercept b of the line that contains the point $(-4, 1)$ and has the same y -intercept as $3x - 2y = 10$? **TAKS Obj. 3**

- (F) $m = -\frac{3}{2}$, $b = -5$ (G) $m = 1$, $b = 5$
(H) $m = \frac{3}{2}$, $b = 7$ (J) $m = \frac{9}{4}$, $b = 10$