

## Practice Test

Period \_\_\_\_\_

**Simplify the imaginary numbers. (No exponents!)**

1)  $(i)^{23}$

2)  $(i)^{113}$

**Write the numbers using the imaginary unit, i.**

3)  $\sqrt{-15}$

4)  $-\sqrt{-4}$

**Simplify. Write your final answer in standard form.**

5)  $(-9 - i) - (-2 - 3i)$

6)  $(8 + 3i) - (10 + i)$

7)  $(-6 - 10i) - (-4 - i)$

8)  $(-10 - 10i) + (-4 - 10i)$

**Simplify.**

9)  $(8 - 2i)(5 + 2i)$

10)  $(7 + i)(-4 + 3i)$

11)  $(-3 + 7i)(6 + 5i)$

12)  $(-8 + 8i)(-5 + 8i)$

13)  $(1 - 4i)(8 + 4i)$

14)  $4(3i)(5 + 7i)$

15)  $(-2 - 2i)(-8 - i)$

16)  $(7 - 6i)(-1 - 2i)$

**Find the discriminant of each quadratic equation then state the number and type of solutions.**

17)  $-a^2 - 3a + 9 = 9$

18)  $7v^2 - 5v - 4 = -10$

19)  $-5p^2 - 7p + 11 = 5$

20)  $3p^2 - 4p - 7 = -7$

**Solve each equation by taking square roots.**

21)  $n^2 - 7 = 41$

22)  $8n^2 = 648$

23)  $x^2 + 6 = 3$

24)  $-3k^2 = 162$

**Solve each equation with the quadratic formula.**

25)  $k^2 = -8k + 14$

26)  $3n^2 + n = -11$

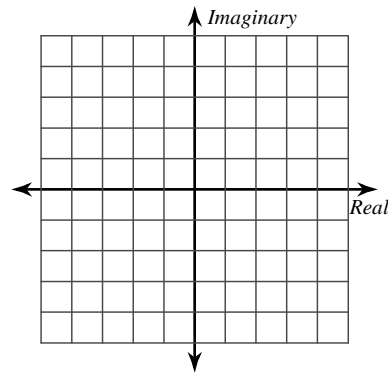
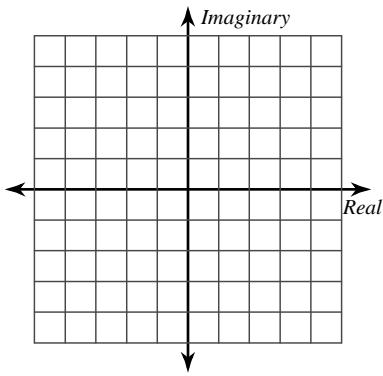
27)  $12k^2 - 20 = 4k$

28)  $4p^2 - 78 = 11p$

**Graph each number in the complex plane.**

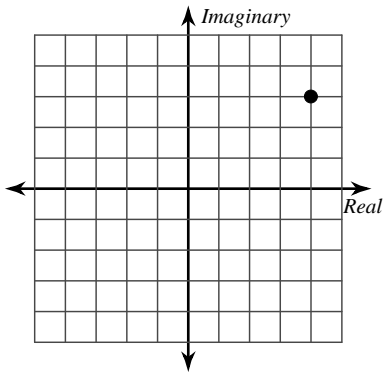
29)  $-4 + 3i$

30)  $1 - i$

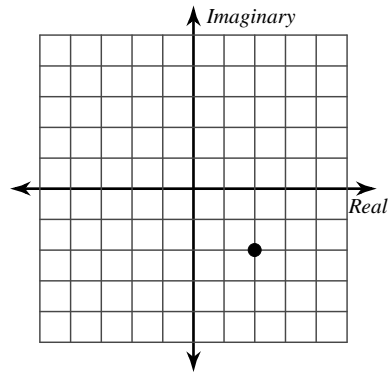


**Identify each complex number graphed.**

31)



32)



# Answers to Practice Test

- |   |   |  |                  |
|---|---|--|------------------|
| 1) $-i$   | 2) $i$  | 3) $i\sqrt{15}$                          | 4) $-2i$         |
| 5) $-7 + 2i$  | 6) $-2 + 2i$  | 7) $-2 - 9i$                             | 8) $-14 - 20i$   |
| 9) $44 + 6i$  | 10) $-31 + 17i$   | 11) $-53 + 27i$                          | 12) $-24 - 104i$ |
| 13) $24 - 28i$  | 14) $-84 + 60i$   | 15) $14 + 18i$                           | 16) $-19 - 8i$   |
| 17) 9; two real solutions   | 18) $-143$ ; two imaginary solutions                                  | 19) 169; two real solutions              |                  |
| 20) 16; two real solutions  | 21) $\{4\sqrt{3}, -4\sqrt{3}\}$                                       | 22) $\{9, -9\}$                          |                  |
| 23) $\{i\sqrt{3}, -i\sqrt{3}\}$   | 24) $\{3i\sqrt{6}, -3i\sqrt{6}\}$                                     | 25) $\{-4 + \sqrt{30}, -4 - \sqrt{30}\}$ |                  |
| 26) $\left\{\frac{-1 + i\sqrt{131}}{6}, \frac{-1 - i\sqrt{131}}{6}\right\}$ | 27) $\left\{\frac{1 + \sqrt{61}}{6}, \frac{1 - \sqrt{61}}{6}\right\}$ | 28) $\left\{6, -\frac{13}{4}\right\}$    |                  |
| 29)   | 30)   | 31) $4 + 3i$                             | 32) $2 - 2i$     |

