

Unit 4 Review

Date _____ Period _____

Find the absolute value of each complex number.

1) $|2 + 8i|$

2) $|5 + 4i|$

Simplify.

3) $(6i)(-5 + 6i) - (2i)(-1 - 8i)$

4) $6 + (-8 - 8i) + 10$

5) $6(-7 - 10i) + (i)(7i)$

6) $(3 + 8i)(1 + 4i)$

7) $(-7i)(i)(-2 + 5i)$

8) $(6 - 2i)(2 - 5i)$

9) $-\frac{5}{4i}$

10) $\frac{-7}{-2i}$

11) $\frac{-3 - 3i}{6 + 2i}$

12) $\frac{i}{-1 + 5i}$

Solve each equation by factoring.

13) $2p^2 - 21p + 53 = 4$

14) $3p^2 - 7p - 38 = 2$

15) $8b^2 + 16b = 192$

16) $6n^2 - 6n - 72 = 0$

17) $7m^2 - 14m - 245 = 0$

18) $x^2 - 6x - 7 = 0$

Solve each equation by taking square roots.

19) $6x^2 - 1 = 95$

20) $4a^2 + 5 = -75$

Solve each equation by completing the square.

21) $v^2 + 8v + 9 = -2$

22) $a^2 - 8a - 52 = -4$

Solve each equation with the quadratic formula or square roots.

23) $4x^2 = -3 + 6x$

24) $10b^2 = 9$

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

25) $-6a^2 + 2a + 7 = 8$

26) $-4x^2 - 4x + 6 = 7$

27) $9b^2 - 6b + 5 = 4$

28) $2x^2 + 7x - 7 = -3$

Solve by factoring or taking square roots.

29) $25b^2 - 16 = 0$

30) $16r^2 - 9 = 0$

31) $4x^2 + 20x + 25 = 0$

32) $4v^2 - 20v + 25 = 0$

Simplify. Your answer should contain only positive exponents with no fractional exponents in the denominator.

33) $y^{\frac{2}{3}} \cdot 2yx^{\frac{1}{2}} \cdot 4x^{-2}y^{-2}$

34) $xy^{\frac{5}{3}} \cdot 3y^{\frac{7}{4}}$

35) $nm^{\frac{3}{2}} \cdot 2m^{\frac{5}{4}}n^2$

36) $yx^{\frac{5}{4}} \cdot 3x^{\frac{2}{3}}y^{\frac{4}{3}}$

37) $m^{-2}n^2 \cdot 3n^{\frac{5}{3}}$

Write each expression in exponential form.

38) $(\sqrt{3x})^3$

39) $\sqrt[6]{2x^2}$

40) $(\sqrt[3]{10n})^4$

41) $(\sqrt{7p})^5$

42) $\sqrt{6b}$

Unit 4 Review

Date _____ Period _____

Find the absolute value of each complex number.

1) $|2 + 8i|$
 $2\sqrt{17}$

2) $|5 + 4i|$
 $\sqrt{41}$

Simplify.

3) $(6i)(-5 + 6i) - (2i)(-1 - 8i)$
 $-52 - 28i$

4) $6 + (-8 - 8i) + 10$
 $8 - 8i$

5) $6(-7 - 10i) + (i)(7i)$
 $-49 - 60i$

6) $(3 + 8i)(1 + 4i)$
 $-29 + 20i$

7) $(-7i)(i)(-2 + 5i)$
 $-14 + 35i$

8) $(6 - 2i)(2 - 5i)$
 $2 - 34i$

9) $-\frac{5}{4i} - \frac{5i}{4}$

10) $\frac{-7}{-2i} - \frac{7i}{2}$

11) $\frac{-3 - 3i}{6 + 2i} - \frac{-6 - 3i}{10}$

12) $\frac{i}{-1 + 5i} - \frac{-i + 5}{26}$

Solve each equation by factoring.

13) $2p^2 - 21p + 53 = 4$
 $\left\{\frac{7}{2}, 7\right\}$

14) $3p^2 - 7p - 38 = 2$
 $\left\{-\frac{8}{3}, 5\right\}$

15) $8b^2 + 16b = 192$
 $\{4, -6\}$

16) $6n^2 - 6n - 72 = 0$
 $\{4, -3\}$

17) $7m^2 - 14m - 245 = 0$
 $\{-5, 7\}$

18) $x^2 - 6x - 7 = 0$
 $\{-1, 7\}$

Solve each equation by taking square roots.

19) $6x^2 - 1 = 95$
 $\{4, -4\}$

20) $4a^2 + 5 = -75$
 $\{2i\sqrt{5}, -2i\sqrt{5}\}$

Solve each equation by completing the square.

21) $v^2 + 8v + 9 = -2$
 $\{-4 + \sqrt{5}, -4 - \sqrt{5}\}$

22) $a^2 - 8a - 52 = -4$
 $\{12, -4\}$

Solve each equation with the quadratic formula or square roots.

23) $4x^2 = -3 + 6x$

$$\left\{ \frac{3 + i\sqrt{3}}{4}, \frac{3 - i\sqrt{3}}{4} \right\}$$

24) $10b^2 = 9$

$$\left\{ \frac{3\sqrt{10}}{10}, -\frac{3\sqrt{10}}{10} \right\}$$

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

25) $-6a^2 + 2a + 7 = 8$

-20 ; two imaginary solutions

26) $-4x^2 - 4x + 6 = 7$

0 ; one real solution

27) $9b^2 - 6b + 5 = 4$

0 ; one real solution

28) $2x^2 + 7x - 7 = -3$

81 ; two real solutions

Solve by factoring or taking square roots.

29) $25b^2 - 16 = 0$

$$(5b + 4)(5b - 4)$$

30) $16r^2 - 9 = 0$

$$(4r + 3)(4r - 3)$$

31) $4x^2 + 20x + 25 = 0$

$$(2x + 5)^2$$

32) $4v^2 - 20v + 25 = 0$

$$(2v - 5)^2$$

Simplify. Your answer should contain only positive exponents with no fractional exponents in the denominator.

33) $y^{\frac{2}{3}} \cdot 2yx^{\frac{1}{2}} \cdot 4x^{-2}y^{-2} \frac{8x^{\frac{1}{2}}y^{\frac{2}{3}}}{x^2y}$

34) $xy^{\frac{5}{3}} \cdot 3y^{\frac{7}{4}} \frac{3xy^{\frac{41}{12}}}{3xy^{\frac{41}{12}}}$

35) $nm^{\frac{3}{2}} \cdot 2m^{\frac{5}{4}}n^2 \frac{2n^3m^{\frac{11}{4}}}{2n^3m^{\frac{11}{4}}}$

36) $yx^{\frac{5}{4}} \cdot 3x^{\frac{2}{3}}y^{\frac{4}{3}} \frac{3x^{\frac{23}{12}}y^{\frac{7}{3}}}{3x^{\frac{23}{12}}y^{\frac{7}{3}}}$

37) $m^{-2}n^2 \cdot 3n^{\frac{5}{3}} \frac{3n^{\frac{11}{3}}}{m^2}$

Write each expression in exponential form.

38) $(\sqrt{3x})^3$

$$(3x)^{\frac{3}{2}}$$

39) $\sqrt[6]{2x^2}$

$$(2x^2)^{\frac{1}{6}}$$

40) $(\sqrt[3]{10n})^4$

$$(10n)^{\frac{4}{3}}$$

41) $(\sqrt{7p})^5$

$$(7p)^{\frac{5}{2}}$$

42) $\sqrt{6b}$

$$(6b)^{\frac{1}{2}}$$