Math 0482 Final Exam Review: Chapter 5

Sections 1-7

Simplify.

1) $-\sqrt{121}$

2) $\sqrt{(-7)^2}$

3) $\sqrt{(xy)^2}$

4) $\sqrt{(6x-7)^2}$

5) $\sqrt[3]{125}$

6) $\sqrt[3]{-27}$

7) $\sqrt[3]{(xy)^3}$

8) $\sqrt[3]{(6x+1)^3}$

9) $\sqrt[3]{250}$

10) $4\sqrt[3]{120}$

11) $-3\sqrt[3]{108}$

12) $10\sqrt[5]{\frac{1}{32}}$

13) $-6\sqrt[4]{\frac{81}{16}}$

14) $-3\sqrt{420}$

15) $\sqrt{20x^4y^3}$

16) $-4\sqrt{54x^6y^3}$

17) $\sqrt{x^2-14x+49}$

18) $\sqrt{(x-8)^4}$

Math 0482 Final Exam Review: Chapter 5

Simplify. Assume all variable expressions are nonzero.

19) $\sqrt{36a^6b^2}$

20) $\sqrt{\dfrac{72x^4y}{z^6}}$

21) $\sqrt[3]{48x^6y^3z^2}$

22) $\sqrt[5]{\dfrac{a^{26}}{32b^5c^{10}}}$

23) Find the distance between (−5, 6) and (−3,−4).

Simplify. Assume all radicands containing variables are nonnegative.

24) $14\sqrt{3}+5\sqrt{2}-5\sqrt{3}-6\sqrt{2}$

25) $22\sqrt{ab}-5a\sqrt{b}+7\sqrt{ab}-2a\sqrt{b}$

26) $\left(8y\sqrt{x}-7x\sqrt{y}\right)-\left(5x\sqrt{y}-12y\sqrt{x}\right)$

27) $\sqrt{45}+\sqrt{12}-\sqrt{20}-\sqrt{75}$

28) $5y\sqrt{4x^2y}-\left(x\sqrt{16y^3}-2\sqrt{9x^2y^3}\right)$

Multiply.

29) $\sqrt{6}\cdot\sqrt{15}$

30) $\left(4\sqrt{2}\right)^2$

31) $\sqrt{2}\left(\sqrt{2}-\sqrt{10}\right)$

32) $\left(\sqrt{5}-\sqrt{6}\right)^2$

33) $\left(5-\sqrt{3}\right)\left(5+\sqrt{3}\right)$

34) $\sqrt[3]{3a^2}\cdot\sqrt[3]{18a}$

Math 0482 Final Exam Review: Chapter 5

Divide. Assume all variables represent nonzero numbers and rationalize the denominator where appropriate.

35) $\dfrac{\sqrt{72}}{\sqrt{9}}$

36) $\dfrac{\sqrt{15}}{\sqrt{2}}$

37) $\dfrac{2\sqrt{3x}}{\sqrt{6xy}}$

38) $\dfrac{5ab^2}{\sqrt[3]{5a^2b}}$

39) $\sqrt[5]{\dfrac{27ab^3}{15a^4bc^2}}$

40) $\dfrac{\sqrt{3}}{\sqrt{2}+1}$

41) $\dfrac{-3\sqrt{6}}{2-\sqrt{10}}$

Express in radical form.

42) $11^{1/2}$

43) $2^{2/3}$

44) $x^{3/5}$

45) $a^{-4/5}$

Math 0482 Final Exam Review: Chapter 5

Write as a radical and then simplify.

46) $16^{1/2}$

47) $72^{1/2}$

48) $8^{2/3}$

49) $32^{1/3}$

50) $\left(\frac{1}{9}\right)^{3/2}$

51) $\left(\frac{1}{216}\right)^{-1/3}$

Perform the operations and simplify. Leave answers in exponential form.

52) $6^{1/2} \cdot 6^{3/2}$

53) $\frac{6^{5/2}}{6^{3/2}}$

54) $\left(\frac{a^{4/3}}{a^{1/2}}\right)^{2/5}$

Solve.

55) $\sqrt{x-5}+4=8$

56) $\sqrt{4x-3}=\sqrt{2x+15}$

57) $\sqrt{2(x+1)}-\sqrt{x+2}=1$

Write the complex number in standard form $a + bi$

58) $5-\sqrt{-16}$

59) $\frac{3+\sqrt{-8}}{10}$

Math 0482 Final Exam Review: Chapter 5

Perform the operations

60) $4i\,(2-3i)$

61) $(2+3i)\,(5-2i)$

62) Show that both $-5i$ and $5i$ satisfy $x^2+25=0$.