Math 098 Exam 2 Preparation Supplement Ch 4, 5, & 6 v01
NO BOOK/ NO NOTES/YES CALCUATOR
Dressler Winter 2016

Name_____

Simplify the expression. Assume that all variables are positive when they appear.

1) $19\sqrt[3]{2} - 5\sqrt[3]{250}$ 1) _____

2) $\dfrac{3-\sqrt{2}}{3+\sqrt{2}}$ 2) _____

3) $\dfrac{1-\sqrt{10}}{1+\sqrt{10}}$ 3) _____

4) $\dfrac{6\sqrt{3}+\sqrt{6}}{\sqrt{6}+\sqrt{3}}$ 4) _____

5) $\dfrac{6\sqrt{4}+\sqrt{8}}{\sqrt{8}+\sqrt{4}}$ 5) _____

6) $\dfrac{7}{\sqrt[3]{3}}$ 6) _____

7) $\frac{5}{\sqrt[3]{3}}$ 7) _____

8) $\frac{-11}{\sqrt[3]{4}}$ 8) _____

9) $\frac{-13}{\sqrt[3]{9}}$ 9) _____

10) $14\sqrt[3]{2} - 5\sqrt[3]{250}$ 10) _____

11) $\sqrt[3]{8y} - \sqrt[3]{54y}$ 11) _____

12) $\sqrt[3]{27y} - \sqrt[3]{128y}$ 12) _____

13) $(8\sqrt{7} - 6)^2$ 13) _____

14) $(5\sqrt{5} + 8)^2$ 14) _____

15) $2\sqrt[3]{125x} + 2\sqrt[3]{8x}$ 15) _____

16) $5\sqrt[3]{125x} + 5\sqrt[3]{64x}$ 16) _____

17) $4\sqrt[3]{16x} - 2\sqrt[3]{128x}$ 17) _____

18) $3\sqrt[3]{16x} - 2\sqrt[3]{54x}$ 18) _____

19) $\sqrt[3]{216} + 1 - \sqrt[3]{14}$ 19) _____

20) $\sqrt[3]{125} + 13 - \sqrt[3]{14}$ 20) _____

21) $\sqrt{3x^2} - \sqrt[3]{320} + \sqrt{147x^2}$ 21) _____

22) $\sqrt{2x^2} - \sqrt[3]{192} + \sqrt{128x^2}$ 22) _____

Solve the problem.

23) A formula used to determine the velocity v in feet per second of an object (neglecting air resistance) after it has fallen a certain height is $v = \sqrt{2gh}$, where g is the acceleration due to gravity and h is the height the object has fallen. If the acceleration g due to gravity on Earth is approximately 32 feet per second, find the velocity of a bowling ball after it has fallen 60 feet. (Round to the nearest tenth.) 23) _____

24) A formula used to determine the velocity v in feet per second of an object (neglecting air resistance) after it has fallen a certain height is $v = \sqrt{2gh}$, where g is the acceleration due to gravity and h is the height the object has fallen. If the acceleration g due to gravity on Earth is approximately 32 feet per second, find the velocity of a bowling ball after it has fallen 40 feet. (Round to the nearest tenth.) 24) _____

25) Police use the formula $s = \sqrt{30fd}$ to estimate the speed s of a car in miles per hour, where d is the distance in feet that the car skidded and f is the coefficient of friction. If the coefficient of friction on a certain gravel road is 0.27 and a car skidded 340 feet, find the speed of the car, to the nearest mile per hour. 25) _____

26) Police use the formula $s = \sqrt{30fd}$ to estimate the speed s of a car in miles per hour, where d is the distance in feet that the car skidded and f is the coefficient of friction. If the coefficient of friction on a certain gravel road is 0.28 and a car skidded 350 feet, find the speed of the car, to the nearest mile per hour. 26) _____

27) Julie and Eric row their boat (at a constant speed) 21 miles downstream for 3 hours, helped by the current. Rowing at the same rate, the trip back against the current takes 7 hours. Find the rate of the current. 27) _____

28) Julie and Eric row their boat (at a constant speed) 32 miles downstream for 4 hours, helped by the current. Rowing at the same rate, the trip back against the current takes 8 hours. Find the rate of the current. 28) _____

29) Julie and Eric row their boat (at a constant speed) 48 miles downstream for 6 hours, helped by the current. Rowing at the same rate, the trip back against the current takes 8 hours. Find the rate of the current. 29) _____

30) A barge takes 5 hours to move (at a constant rate) downstream for 45 miles, helped by a current of 2 miles per hour. If the barge's engines are set at the same pace, find the time of its return trip against the current. 30) _____

31) A barge takes 6 hours to move (at a constant rate) downstream for 60 miles, helped by a current of 2 miles per hour. If the barge's engines are set at the same pace, find the time of its return trip against the current. 31) _____

32) A barge takes 4 hours to move (at a constant rate) downstream for 40 miles, helped by a current of 3 miles per hour. If the barge's engines are set at the same pace, find the time of its return trip against the current. 32) _____

1) $-6\sqrt[3]{2}$
2) $\frac{11-6\sqrt{2}}{7}$
3) $\frac{11-2\sqrt{10}}{-9}$
4) $5\sqrt{2}-4$
5) $5\sqrt{2}-4$
6) $\frac{7\sqrt[3]{9}}{3}$
7) $\frac{5\sqrt[3]{9}}{3}$
8) $\frac{-11\sqrt[3]{2}}{2}$
9) $\frac{-13\sqrt[3]{3}}{3}$
10) $-11\sqrt[3]{2}$
11) $2\sqrt[3]{y}-3\sqrt[3]{2y}$
12) $3\sqrt[3]{y}-4\sqrt[3]{2y}$
13) $484-96\sqrt{7}$
14) $189+80\sqrt{5}$
15) $14\sqrt[3]{x}$
16) $45\sqrt[3]{x}$
17) 0
18) 0
19) $7-\sqrt[3]{14}$
20) $18-\sqrt[3]{14}$
21) $8x\sqrt{3}-4\sqrt[3]{5}$
22) $9x\sqrt{2}-4\sqrt[3]{3}$
23) 62.0 ft per sec
24) 50.6 ft per sec
25) 52 mph
26) 54 mph
27) 2 mph
28) 2 mph
29) 1 mph
30) 9 hours
31) 10 hours
32) 10 hours