Name: _____   **Date:** _____

1. Evaluate: $9^{\frac{3}{2}}$

   A. $\sqrt{27}$ B. 27   C. 81   D. 243

7. Simplify $\sqrt{25} + \sqrt{9}$.

   A. $\sqrt{34}$ B. 8   C. 34   D. 706

2. Simplify: $2\sqrt{162}$

   A. $9\sqrt{2}$ B. $18\sqrt{2}$ C. $6\sqrt{18}$ D. $9\sqrt{18}$

8. Simplify $\sqrt{\frac{1}{9}} + \sqrt{\frac{1}{16}}$.

   A. $\sqrt{\frac{1}{4}}$ B. $\sqrt{\frac{1}{3}}$ C. $\frac{13}{36}$ D. $\frac{7}{12}$

3. Which one of the following radicals *cannot* be simplified?

   A. $\sqrt{46}$ B. $\sqrt{72}$ C. $\sqrt{75}$ D. $\sqrt{104}$

9. Simplify: $6\sqrt{5} - \sqrt{80} - 3\sqrt{20}$

   A. $-22\sqrt{5}$ B. $-4\sqrt{5}$

   C. $-4\sqrt{15}$ D. $16\sqrt{15}$

4. Simplify: $\sqrt{64x^4y^6}$

   A. $8xy^2$ B. $8x^2y^3$ C. $8x^6y^4$ D. $8x^8y^{12}$

10. Simplify: $\sqrt{6} \cdot \sqrt{3} \cdot \sqrt{18}$

    A. 324   B. 18   C. $9\sqrt{18}$ D. $3\sqrt{18}$

5. Simplify: $\sqrt[3]{27a^{12}}$

   A. $-4a^3$ B. $-3a^{12}$ C. $3a^4$ D. $4a^3$

11. Simplify: $(8 + \sqrt{3})(2 - \sqrt{3})$

    A. $7 - 10\sqrt{3}$ B. $13 - 6\sqrt{3}$

    C. $13 - 10\sqrt{3}$ D. $19 - 10\sqrt{3}$

6. Simplify: $\sqrt{3a} \cdot \sqrt{15a^2}$

   A. $3a\sqrt{5a}$ B. $3a^2\sqrt{5a}$

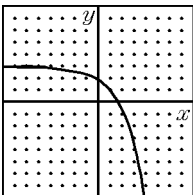   C. $5a^2\sqrt{3a}$ D. $5a\sqrt{3a^2}$
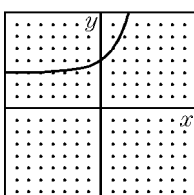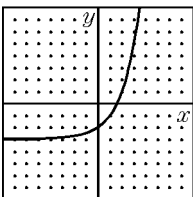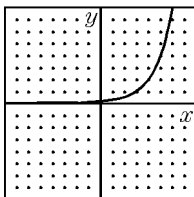
12. Simplify: $(1 - 6\sqrt{3})(3 + 6\sqrt{3})$

    A. $-108 + 6\sqrt{3}$ B. $-105 - 12\sqrt{3}$

    C. $3 - 24\sqrt{3}$ D. $3 - 18\sqrt{3}$

13. Simplify: $(3 - \sqrt{2})^2$

    A. 11   B. $7 - 3\sqrt{2}$

    C. $7 - 6\sqrt{2}$ D. $11 - 6\sqrt{2}$

14. A population of insects can double in 40 days. After 125 days, how many times greater will the population be than after 40 days?

    A. 0.25 times   B. 4.17 times

    C. 4.36 times   D. 12.23 times

15. A super bouncy ball is released 7 m above the sidewalk. The ball rises to 78% of its previous height after each bounce. Find the height of the ball after 8 bounces.

    A. 0.87 m   B. 0.96 m

    C. 1.12 m   D. 1.41 m

16. The population of Canada in 1999 was 31 006 000. If the population grows at 1.2% per year, determine approximately how many years (from 1999) it will take the population to reach 40 000 000. Assume that the population will continue to grow at the same rate.

    A. 26 years   B. 2 years

    C. 249 years   D. 21 years

17. A laboratory had 96 oz of radio active material. Every year $\frac{1}{2}$ of the material decayed (went away). How much was left after 5 years?

    A. 0.3 ounce   B. 3 ounces

    C. 3.3 ounces   D. 19.2 ounces

18. Corey invested $57 000. He invested part of it at 8% interest per year and the rest at 10% interest per year. If his total interest income for the year was $5 000, then how much was invested at 8%?

    A. $17 000   B. $22 000

    C. $35 000   D. $40 000

19. Fred knows his home appreciates in value every year by 1.2%. Fred is planning to sell his home. Which of the following represents a selling price (y) that would please Fred? (t is the number of years that Fred has owned his home.)

    A. $y < 1.2^t$ B. $y > 1.2^t$

    C. $y < 1.012^t$ D. $y > 1.012^t$

20. $x^{2a} \cdot x^{2b}$ is equivalent to which expression?

    A. $x^{a/b}$ B. x^{4ab} C. x^{2a-2b} D. x^{2a+2b}

21. A particular type of bacteria doubles every hour. If you start your observation with 200 strands of this type of bacteria, state a reasonable domain and range for this exponential growth.

    A. domain = $(-\infty, \infty)$, range = $[200, \infty)$

    B. domain = $(200, \infty)$, range = $[0, \infty)$

    C. domain = $[0, \infty)$, range = $[200, 400]$

    D. domain = $[0, \infty)$, range = $[200, \infty)$

22. Suppose a car depreciated $\frac{1}{6}$ of its value every year. If the car is originally worth \$18,000, what is a reasonable domain for this exponential decay?
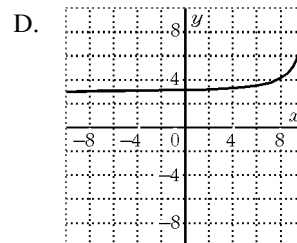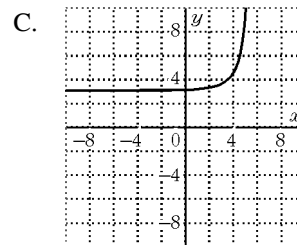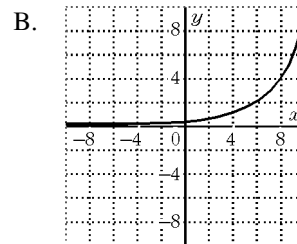
    A.   [0, 18000]

    B.   [0, 18000)

    C.   (0, 18000]

    D. $\{0, 500, 3000, 18000\}$

23. Which one of the following sketches is a reasonable graph of $y = 2^x + 3$?

    A.

    B.

    C.

    D.

24.
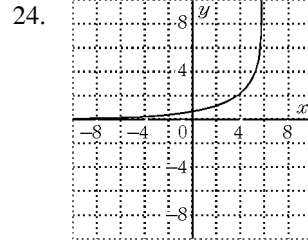
The graph of $y = 4^{x-4}$ is given. Which is the graph of $y = 4^{x-7}$?

    A.

    B.

    C.

    D.
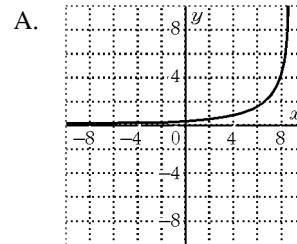
25. The graph of $(\frac{1}{2})^x = y$ lies only in _____ .

    A.   quadrant I   B.   quadrant II

    C.   quadrants I and II   D.   quadrants I and IV

26. The graph of $y = 3^x$:

    A. intersects the x-axis only

    B. intersects the y-axis only

    C. intersects both coordinate axes

    D. does not intersect either axis

27. Which of the following is *never* true, given m and n are positive integers greater than 0?

    A. $x^m x^n = x^{\frac{m}{n}}$ B. $x^{\frac{m}{n}} = x^{m-n}$

    C. $(x^m)^{-n} = \dfrac{1}{x^{mn}}$ D. $(x^m)^n = x^{mn}$

28. When is $\left(\dfrac{4}{5}\right)^m = 1$ a true statement?

    A. when $m > 0$ B. when $m < 0$

    C. when $m = 0$ D. never

CCM2 Unit 3 NC Final Exam Review   01/06/2014

1.
Answer: B
Objective: N.RN.02

2.
Answer: B
Objective: N.RN.02

3.
Answer: A
Objective: N.RN.02

4.
Answer: B
Objective: N.RN.02

5.
Answer: C
Objective: N.RN.02

6.
Answer: A
Objective: N.RN.02

7.
Answer: B
Objective: N.RN.02

8.
Answer: D
Objective: N.RN.02

9.
Answer: B
Objective: N.RN.02

10.
Answer: B
Objective: N.RN.02

11.
Answer: B
Objective: N.RN.02

12.
Answer: B
Objective: N.RN.02

13.
Answer: D
Objective: N.RN.02

14.
Answer: C
Objective: A.CED.01

15.
Answer: B
Objective: A.CED.01

16.
Answer: D
Objective: A.CED.01

17.
Answer: B
Objective: A.CED.01

18.
Answer: C
Objective: A.CED.01

19.
Answer: D
Objective: A.CED.01

20.
Answer: D
Objective: A.SSE.03C

21.
Answer: D
Objective: F.IF.05

22.
Answer: C
Objective: F.IF.05

23.
Answer: B
Objective: F.IF.07E

24.
Answer: A
Objective: F.IF.07E

25.
Answer: C
Objective: F.IF.07E

26.
Answer: B
Objective: F.IF.07E

27.
Answer: A
Objective: A.SSE.03C

28.
Answer: C
Objective: A.SSE.03C