

Name: _____

2nd Semester Exam Review

Ch. 6 Exponential Equations and functions

1. Simplify $\frac{m^7}{m^{-2}}$

2. Simplify $a^4 \cdot a^8$

3. Simplify 3^{-3}

4. What is the product of $6x^3$ and $-2x^4$?
 $(x^{-3})^2(x^5)^3$

5. Simplify $(-8x^5y)^2$

6. Simplify

7. Simplify the expression $\frac{45a^4b}{15a^3b^2}$

8. The population of a town in 1995 was 2000. If the town is growing at a rate of 1% annually, which equation shows the population of the town 'x' years after 1995?

a. $P(x) = 2000(0.01)^x$

b. $P(x) = 2000(1.01)^x$

c. $P(x) = 2000(1.01)x$

d. $P(x) = 1(2000)^x$

9. The initial population of a town is 5000. The following function shows the population of the town 'x' years later. Is the town's population increasing or decreasing? How do you know?

$$P(x) = 5000(0.95)^x$$

10. A piece of machinery initially costs \$25,000. If the machine depreciates (loses value) at a rate of 25% per year, which of the following equations shows the value of the machine after 5 year?

a. $v = 25,000(.25)^5$

b. $v = 25,000(1.25)^5$

c. $v = 25,000(0.75)^5$

d. $v = 25,000(.25)5$

Ch. 7 Polynomials and Factoring

1. Add $(3x^3 + 5x - 9) + (4x^3 - 17)$

2. Subtract $(5x^4 + x^2 - 9x) - (3x^4 - x^2 + 2)$

3. Multiply $(3x + 5)(x - 4)$

4. Simplify $(4x + 5)^2$

5. Find the product $(4x^2 + 5x - 8)(x + 3)$

6. Factor $15x^2 + 10x$

7. Factor $-10x^2 + 4x$

8. Factor $x^2 + 5x + 6$

9. Factor $x^2 - 7x - 8$

10. Factor $x^2 + 2x - 35$

11. Factor $x^2 + 6x + 20$

12. Factor $3x^2 - 8x - 3$

13. Factor $2x^2 + 11x + 15$

14. Which of these is a “difference of squares”?

a. $x^3 - 9$

b. $x^2 - 20$

c. $x^2 - 49$

d. $x^2 + 100$

Ch. 8 Graphing Quadratic Functions (only section 8.4 is tested)

Use the following equation to answer questions #1-4.

$$y = -2x^2 + 12x - 10$$

1) Does the graph of this parabola open up or open down? How do you know?

2) Where does the parabola cross the y-axis?

3) What is the equation for the axis of symmetry of the parabola?

4) What are the coordinates of the vertex of the parabola?

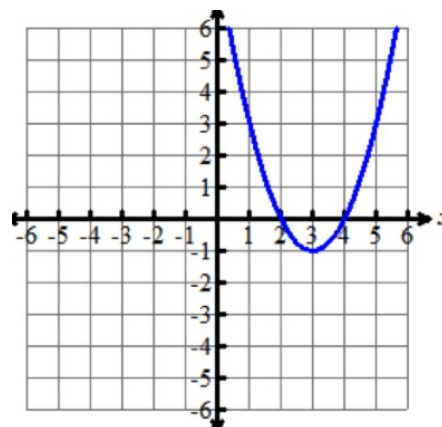
5) Which of these is most likely the equation of the parabola shown?

a. $y = x^2 - 4x + 8$

b. $y = x^2 - 6x + 8$

c. $y = x^2 + 2x + 8$

d. $y = -x^2 + 6x + 8$



Ch. 9 Solving Quadratic Functions

1. The graph of a quadratic function is shown to the right. What are the solutions to the related quadratic equation?

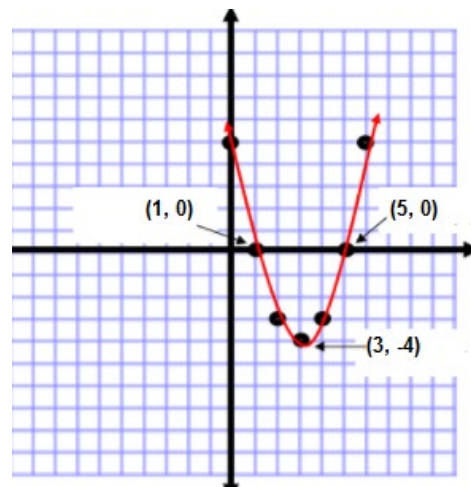
Solve by factoring

2. $(x + 4)(x - 7) = 0$

3. $x^2 - 5x - 36 = 0$

4. $x^2 + x = 6$

5. $3x^2 + 10x + 8 = 0$



6. Solve by using the quadratic formula. Write the answer in simplest radical form (no decimals)

$$x^2 + 6x + 3 = 0$$

7. Solve by using the quadratic formula. Write the answer in simplest radical form (no decimals)

$$2x^2 + x = 5$$

8. If the discriminant of a quadratic equation is negative, what does that mean about the solutions to the quadratic equation? _____ What if the discriminant is zero? _____ What if the discriminant is a positive number? _____

Ch. 10 Radical Expressions and Equations

1. Simplify $\sqrt{63}$

2. Simplify $\sqrt{\frac{3}{7}}$.

3. Simplify $5\sqrt{10} + 3\sqrt{90}$

4. Multiply $\sqrt{3}(5 - \sqrt{6})$

5. Multiply $(2 + \sqrt{6})^2$

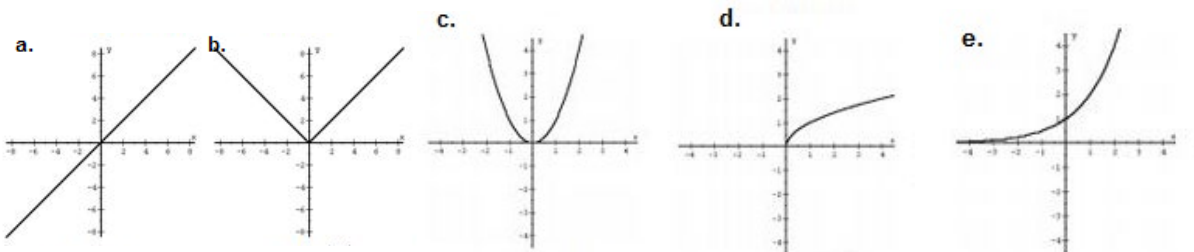
6. Simplify $\frac{4}{3\sqrt{2}}$

7. Solve: $\sqrt{x} - 9 = -4$

8. Solve: $4\sqrt{x} = 12$

9. Solve $x = \sqrt{8x - 15}$

10. Write the name of each “function family” below the graph



Ch. 12 Data Analysis and Displays

The students in two of Mr. Beck's classes took the same history test. Their scores are shown in these stem and leaf plots.

Class 10A	
6	1 2 6
7	0 0 1
8	2 4 4 4 5 8
9	0 5

$$8|2=82$$

Class 10B	
6	1 8
7	0 5 5 8
8	0 2 4 4 4
9	1 3 5

$$8|2=82$$

1) What is the range of scores in Class 10A?

2) What is the median score for Class 10B?

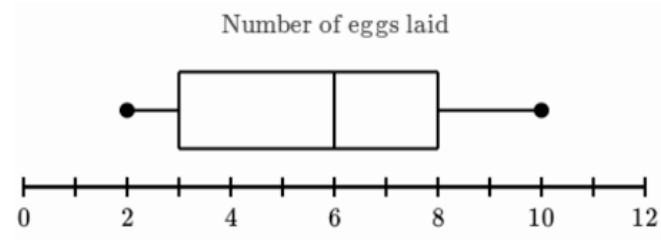
Joey kept track of how many eggs each of his chickens laid last week.

3) What is the maximum number of eggs laid by a chicken?

4) What is the median number of eggs that were laid?

5) What percent of the chickens laid fewer than 3 eggs last week?

6) If Joey has 60 chickens, how many of them laid more than 8 eggs last week?



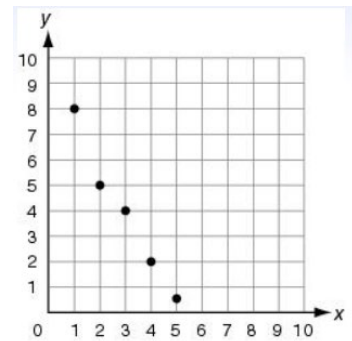
7) Which equation most closely represents the line of best fit for the scatter plot shown below?

A. $y = \frac{-x}{2} + 10$

B. $y = -2x + 10$

C. $y = 2x$

D. $y = \frac{-1}{2}x + 6$



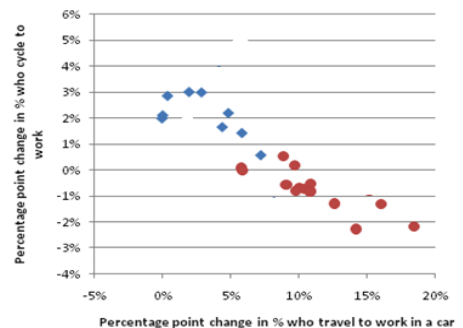
8) What correlation coefficient is most likely associated with the data?

A. 0.8

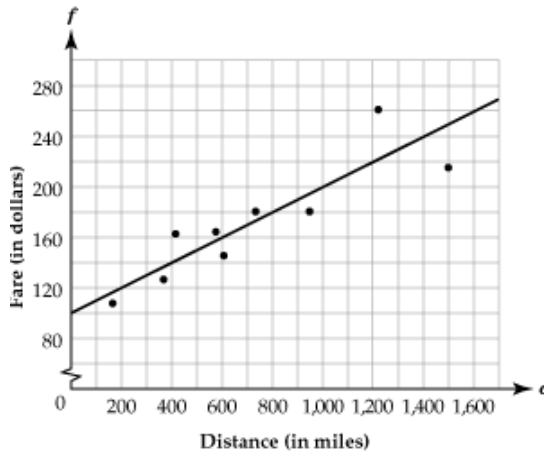
C. -0.8

B. 0

D. -5



LOWEST-PRICED FARES FROM BALTIMORE



9) What is the slope of the best fit line? Interpret the slope for this situation.

10) What is the equation of the best fit line?

11) Use the equation to predict the fare when the distance is 1,800 miles.