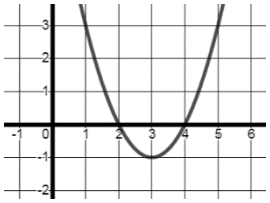
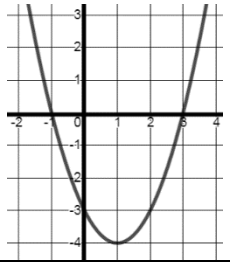
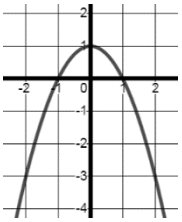
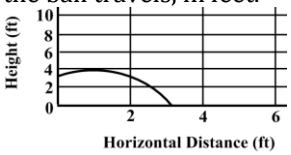
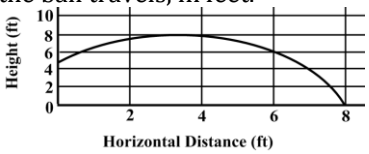
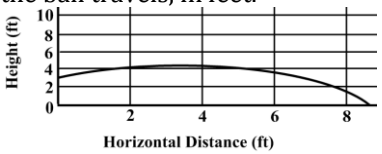
Name: _____

Semester 2 Final Exam Study Guide
(Part 2)

Polynomials	46. Find $(7x-3)(2x^2+8x-5)$. A. $2x^2+15x-8$ B. $14x^3+50x^2-59x+15$ C. $14x^3+62x^2-11x+15$ D. $9x^3+5x-5$	47. Find $(8x-1)(2x^2+4x+7)$. A. $16x^3+30x^2+52x-7$ B. $16x^3+34x^2+60x-7$ C. $10x^3+12x^2+6$ D. $2x^2+12x+6$	48. Find $(-4x^2-x-8)(5x+2)$. A. $-20x^2-55x-16$ B. $-4x^2+4x-6$ C. $-4x^2+5x-6$ D. $-20x^3-13x^2-42x-16$
Polynomials	49. Find $(4m+7)-(2m-3)$. A. $6m+10$ B. $6m+4$ C. $2m+10$ D. $2m+4$	50. Find $(8b-6)-(12b+9)$. A. $-4b-15$ B. $-4b-3$ C. $20b+3$ D. $-4b+3$	51. Find $(k-4)-(3k-7)$. A. $-2k-11$ B. $-2k+3$ C. $4k-11$ D. $-2k+11$
Polynomials	52. Keith makes the claim that when the irrational number π is added to another number, *n*, the result is always an irrational number. Select a value for *n* that disproves this claim. A. 0 B. π C. 4 D. $-\pi$	53. Meredith makes the claim that when the irrational number $8\sqrt{6}$ is added to another irrational number, *n*, the result is always an irrational number. Select a value for *n* that disproves this claim. A. $\sqrt{6}$ B. $-\sqrt{6}$ C. 0 D. $-8\sqrt{6}$	54. Javier makes the claim that when the rational number -17 is added to another number, *n*, the result is always a rational number. Select a value for *n* that disproves this claim. A. 17 B. 0 C. $\sqrt{2}$ D. $-\sqrt{4}$
Quadratics	55. Solve the quadratic equation by factoring, completing the square or by using the quadratic formula. Round to the nearest tenth, if necessary. $-3x^2-17x-10=0$ A. $\{-2,5\}$ B. $\{-5,2\}$ C. $\{5,6.7\}$ D. $\{-6.7,-5\}$	56. Solve the quadratic equation by factoring, completing the square or by using the quadratic formula. Round to the nearest tenth, if necessary. $8x^2-2x-3=0$ A. $\left\{-\frac{1}{2},\frac{3}{4}\right\}$ B. $\{-7.5,5.0\}$ C. $\left\{-\frac{3}{4},\frac{1}{2}\right\}$ D. $\{-5.0,7.5\}$	57. Solve the quadratic equation by factoring, completing the square or by using the quadratic formula. Round to the nearest tenth, if necessary. $10x^2+7x-12=0$ A. $\{-0.8,1.5\}$ B. $\{-1.5,0.8\}$ C. $\{-3,4\}$ D. $\{-4,3\}$
Quadratics	58. Solve the quadratic equation by factoring, completing the square, or by using the Quadratic Formula. Round to the nearest tenth, if necessary. $x^2-x-6=0$ A. $\{2,3\}$ B. $\{-3,2\}$ C. $\{-2,3\}$ D. $\{-3,-2\}$	59. Solve the quadratic equation by factoring, completing the square, or by using the Quadratic Formula. Round to the nearest tenth, if necessary. $x^2-13x+36=0$ A. $\{4,9\}$ B. $\{-9,4\}$ C. $\{-4,9\}$ D. $\{-9,-4\}$	60. Solve the quadratic equation by factoring, completing the square, or by using the Quadratic Formula. Round to the nearest tenth, if necessary. $x^2+6x+5=0$ A. $\{1,5\}$ B. $\{-5,1\}$ C. $\{-1,5\}$ D. $\{-5,-1\}$

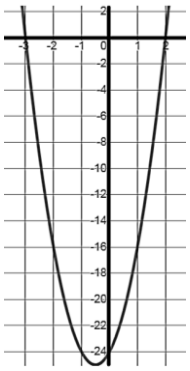
Name: _____

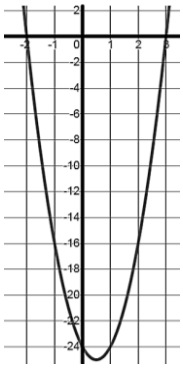
Quadratics	61. What are the root(s) of the quadratic equation whose related function is graphed? **Select all that apply.**  A. $(3,-1)$ B. $(0,2)$ C. $(-1,3)$ D. $(4,0)$ E. $(-4,0)$ F. $(-3,1)$ G. $(2,0)$	62. What are the root(s) of the quadratic equation whose related function is graphed? **Select all that apply.**  A. $(-1,0)$ B. $(0,-3)$ C. $(1,-4)$ D. $(3,0)$ E. $(0,-1)$ F. $(-3,0)$ G. $(-4,1)$	63. What are the root(s) of the quadratic equation whose related function is graphed? **Select all that apply.**  A. $(0,1)$ B. $(0,-1)$ C. $(-2,-3)$ D. $(2,-3)$ E. $(1,0)$ F. $(-1,0)$ G. $(2,3)$
Quadratics	64. Find the y-intercept of the graph $y = x^2 + 9x + 7$. A. $(0,7)$ B. $(0,-7)$ C. $(7,0)$ D. $(-7,0)$	65. Find the y-intercept of the graph $y = 8x^2 - x - 9$. A. $(9,0)$ B. $(0,9)$ C. $(-9,0)$ D. $(0,-9)$	66. Find the y-intercept of the graph $y = -2x^2 + 5x + 10$. A. $(0,-10)$ B. $(0,10)$ C. $(10,0)$ D. $(-10,0)$
Quadratics	67. Morgan is kicking a ball into the air. The path of the ball can be modeled by a quadratic equation where the point $(2,4)$ represents the vertex and the x-axis represents the ground. Which equation(s) could represent the location of the ball when it hits the ground? ***Select all that apply.*** A. $0 = -x^2 - 4x$ B. $0 = -x^2 + 4x$ C. $0 = -(x-2)^2 + 4$ D. $0 = -(x+2)^2 + 4$ E. $0 = -(x+2)(x+4)$ F. $0 = -(x-0)(x-4)$	68. Donald is kicking a ball into the air. The path of the ball can be modeled by a quadratic equation where the point $(3,15)$ represents the vertex and the x-axis represents the ground. Which equation(s) could represent the location of the ball when it hits the ground? ***Select all that apply.*** A. $0 = -(x+3)^2 - 15$ B. $0 = -x^2 + 6x + 6$ C. $0 = -(x+3)(x+15)$ D. $0 = -x^2 - 6x - 6$ E. $0 = -(x-3)^2 + 15$ F. $0 = -(x-3)(x-15)$	69. Ruby is kicking a ball into the air. The path of the ball can be modeled by a quadratic equation where the point $(1,8)$ represents the vertex and the x-axis represents the ground. Which equation(s) could represent the location of the ball when it hits the ground? ***Select all that apply.*** A. $0 = -(x-1)(x-8)$ B. $0 = -(x+1)^2 + 8$ C. $0 = -x^2 + 2x + 7$ D. $0 = -(x-1)^2 + 8$ E. $0 = -x^2 - 2x - 7$ F. $0 = -(x+1)(x+8)$
Quadratics	70. Bobby hits a baseball up into the air from a height of 4 feet. The graph represents the height of the baseball above the ground, in feet, as a function of the horizontal distance the ball travels, in feet.  Which of the following statements describe the path of the ball? Select **two** that apply. A. When the ball is at a horizontal distance of 2 ft it is falling. B. When the ball is at a horizontal distance of 2 ft it is rising. C. The ball lands on the ground 4 ft away from where it was hit. D. The ball lands more than 2 ft away from where it was hit.	71. Ashley hits a baseball up into the air from a height of 8 feet. The graph represents the height of the baseball above the ground, in feet, as a function of the horizontal distance the ball travels, in feet.  Which of the following statements describe the path of the ball? Select **two** that apply. A. When the ball is at a horizontal distance of 6 ft, it is rising. B. When the ball is at a horizontal distance of 2 ft, it is rising. C. The ball lands on the ground 8 ft away from where it was hit. D. The ball lands less than 6 ft away from where it was hit.	72. Clark hits a baseball up into the air from a height of 4.5 feet. The graph represents the height of the baseball above the ground, in feet, as a function of the horizontal distance the ball travels, in feet.  Which of the following statements describe the path of the ball? Select **two** that apply. A. When the ball is at a horizontal distance of 5 ft, it is rising. B. When the ball is at a horizontal distance of 2 ft, it is falling. C. The ball lands on the ground less than 10 ft away from where it was hit. D. The ball lands more than 6 ft away from where it was hit.

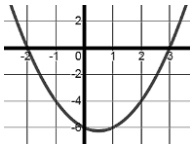
Name: _____

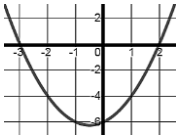
Quadratics

73. Which of the following represents the graph of $f(x) = 4(x + 3)(x - 2)$?

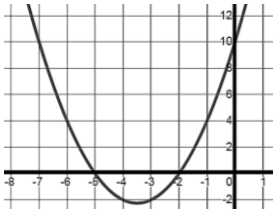
A 

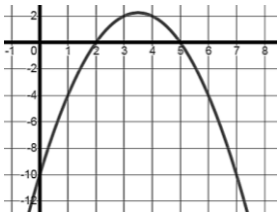
B 

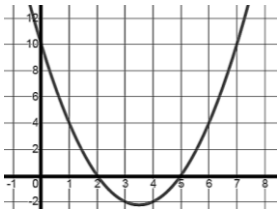
C 

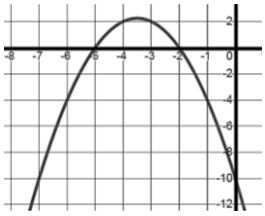
D 

74. Which of the following represents the graph of $f(x) = -(x + 2)(x + 5)$?

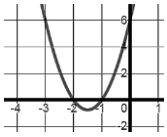
A 

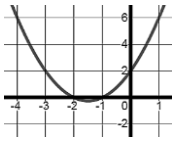
B 

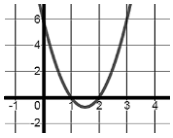
C 

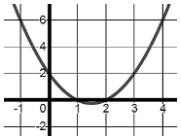
D 

75. Which of the following represents the graph of $f(x) = 3(x - 1)(x - 2)$?

A 

B 

C 

D 

Quadratics

76. What is the RANGE of $f(x) = -(x)^2 + 7$?

A. all real numbers greater than or equal to 0
B. all real numbers less than or equal to 7
C. all real numbers $7k$, where k is a non-positive integer
D. all real numbers

77. What is the RANGE of $f(x) = (x + 5)^2 - 6$?

A. all real numbers $6k$, where k is a non-negative integer
B. all real numbers greater than or equal to -6
C. all real numbers
D. all real numbers greater than or equal to 5

78. What is the RANGE of $f(x) = -(x - 1)^2 - 8$?

A. all real numbers $-8k$, where k is a non-positive integer
B. all real numbers less than or equal to 1
C. all real numbers
D. all real numbers less than or equal to -8

Name: _____

Quadratics

79. Scott found that the solutions to a quadratic equation were 19 and -15. Which of the following descriptions of the quadratic equation are true? Select *all* that apply.

A. The factors are $(x + 19)$ and $(x - 15)$.
B. The *x*-intercepts of the graph are 19 and -15.
C. The *x*-intercepts of the graph are -19 and 15.
D. The equation is $f(x) = (x + 19)(x - 15)$.
E. The factors are $(x - 19)$ and $(x + 15)$.
F. The equation is $f(x) = (x - 19)(x + 15)$.

80. Bianca found that the solutions to a quadratic equation were 10 and -6. Which of the following descriptions of the quadratic equation are true? Select *all* that apply.

A. The factors are $(x + 10)$ and $(x - 6)$.
B. The equation is $f(x) = (x - 10)(x + 6)$.
C. The *x*-intercepts of the graph are 10 and -6.
D. The factors are $(x - 10)$ and $(x + 6)$.
E. The equation is $f(x) = (x + 10)(x - 6)$.
F. The *x*-intercepts of the graph are -10 and 6.

81. Hayley found that the solutions to a quadratic equation were 5 and -11. Which of the following descriptions of the quadratic equation are true? Select *all* that apply.

A. The factors are $(x - 5)$ and $(x + 11)$.
B. The factors are $(x + 5)$ and $(x - 11)$.
C. The equation is $f(x) = (x + 5)(x - 11)$.
D. The equation is $f(x) = (x - 5)(x + 11)$.
E. The *x*-intercepts of the graph are 5 and -11.
F. The *x*-intercepts of the graph are -5 and 11.

Quadratics

82. Solve the equation using the quadratic formula *(you must use the quadratic formula and show your work to get credit)*.

$$x^2 - 2x - 2 = 0$$

83. Solve the equation using the quadratic formula *(you must use the quadratic formula and show your work to get credit)*.

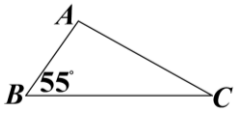
$$x^2 + 12x + 28 = 0$$

84. Solve the equation using the quadratic formula *(you must use the quadratic formula and show your work to get credit)*.

$$x^2 + 4x - 3 = 0$$

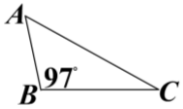
Triangle Sum Theorem

85. A ramp will be installed as modeled in the figure.



If $\angle C$ measures $x°$, what is the measure of $\angle A$?

86. A ramp will be installed as modeled in the figure.



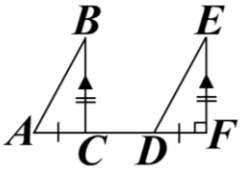
If $\angle C$ measures $x°$, what is the measure of $\angle A$?

87. A ramp will be installed as modeled in the figure.

If $\angle C$ measures $x°$, what is the measure of $\angle A$?

Congruent Triangles & Parallel Lines Cut by a Transversal

88.



Given: $\overline{AC} \cong \overline{DF}, \overline{BC} \cong \overline{EF}, \overline{BC} || \overline{EF}, m\angle DFE = 90°$

Prove: $\triangle ACB \cong \triangle DFE$

Statements	Reasons
1. $\overline{AC} \cong \overline{DF}, \overline{BC} \cong \overline{EF}, \overline{BC} \| \overline{EF}, m\angle F = 90°$	1. Given
2. $\angle ACB \cong \angle DFE$	2. _____
3. $\triangle ACB \cong \triangle DFE$	3. _____

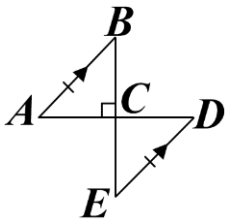
a. Reason #2 is

b. Reason #3 is

Name: _____

Congruent Triangles & Parallel Lines Cut by a Transversal

89.



Given: $\overline{AB} \cong \overline{DE}, \overline{AB} || \overline{DE}, m\angle ACB = 90°$

Prove: $\triangle ACB \cong \triangle DCE$

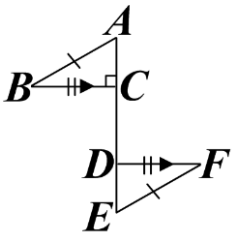
Statements	Reasons
1. $\overline{AB} \cong \overline{DE}, \overline{AB} || \overline{DE}, m\angle ACB = 90°$	1. Given
2. $\angle A \cong \angle D$	2. _____
3. $\angle ACB \cong \angle DCE$	3. Vertical Angles Theorem
4. $\triangle ACB \cong \triangle DCE$	4. _____

a. Reason #2 is [ ]

b. Reason #4 is [ ]

Congruent Triangles & Parallel Lines Cut by a Transversal

90.



Given: $\overline{AB} \cong \overline{EF}, \overline{BC} \cong \overline{FD}, \overline{BC} || \overline{FD}, m\angle ACB = 90°$

Prove: $\triangle ACB \cong \triangle FDE$

Statements	Reasons
1. $\overline{AB} \cong \overline{EF}, \overline{BC} \cong \overline{FD}, \overline{BC} || \overline{FD}, m\angle ACB = 90°$	1. Given
2. $\angle EDF \cong \angle ACB$	2. _____
3. $m\angle EDF = m\angle ACB$	3. Definition of Congruence
4. $m\angle EDF = 90°$	4. Substitution
5. $\triangle ACB \cong \triangle FDE$	5. _____

a. Reason #2 is [ ]

b. Reason #5 is [ ]

Semester 2 Final Exam Study Guide (Part 1) Answers

46. B	47. A	48. D	49. C	50. A	51. B	52. D	53. D	54. C
55. D	56. A	57. B	58. C	59. A	60. D	61. D & G	62. A & D	63. E & F
64. A	65. D	66. B	67. B, C & F	68. B & E	69. C & D	70. A & D	71. B & C	72. C & D
73. A	74. D	75. C	76. B	77. B	78. D	79. B, E & F	80. B, C & D	81. A, D & E
82. $1 \pm \sqrt{3}$ or $1 + \sqrt{3}$ & $1 - \sqrt{3}$			83. $-6 \pm 2\sqrt{2}$ or $-6 + 2\sqrt{2}$ & $-6 - 2\sqrt{2}$			84. $-2 \pm \sqrt{7}$ or $-2 + \sqrt{7}$ & $-2 - \sqrt{7}$		
85. $(125 - x)°$	86. $(83 - x)°$	87. $(132 - x)°$	88. a. Corresponding Angles Postulate; b. SAS		89. a. Alternate Interior Angles Theorem; b. AAS		90. a. Alternate Exterior Angles Theorem; b. HL	