

Math 125 Final Exam Review

10/15/2023

Section 1.1: Review of Algebra I

Section 1.1.1: Factoring

- Factor $x^2 + 5x + 6$.
 $(x+2)(x+3)$
- Factor $x^2 - 4$.
 $(x-2)(x+2)$
- Factor $x^2 + 7x + 12$.
 $(x+3)(x+4)$
- Factor $x^2 - 9$.
 $(x-3)(x+3)$
- Factor $x^2 + 10x + 25$.
 $(x+5)^2$
- Factor $x^2 - 16$.
 $(x-4)(x+4)$
- Factor $x^2 + 8x + 15$.
 $(x+3)(x+5)$
- Factor $x^2 - 25$.
 $(x-5)(x+5)$
- Factor $x^2 + 12x + 36$.
 $(x+6)^2$
- Factor $x^2 - 49$.
 $(x-7)(x+7)$
- Factor $x^2 + 14x + 49$.
 $(x+7)^2$

Section 1.2: Solving Equations

- Solve $x^2 - 5x + 6 = 0$.
 $x = 2, x = 3$
- Solve $x^2 - 4 = 0$.
 $x = -2, x = 2$
- Solve $x^2 + 7x + 12 = 0$.
 $x = -3, x = -4$
- Solve $x^2 - 9 = 0$.
 $x = -3, x = 3$
- Solve $x^2 + 10x + 25 = 0$.
 $x = -5$
- Solve $x^2 - 16 = 0$.
 $x = -4, x = 4$
- Solve $x^2 + 8x + 15 = 0$.
 $x = -3, x = -5$
- Solve $x^2 - 25 = 0$.
 $x = -5, x = 5$
- Solve $x^2 + 12x + 36 = 0$.
 $x = -6$
- Solve $x^2 - 49 = 0$.
 $x = -7, x = 7$
- Solve $x^2 + 14x + 49 = 0$.
 $x = -7$

Section 1.3: Graphing

- Graph $y = x^2 - 5x + 6$.
 Vertex: $(2.5, -2.25)$. x-intercepts: $(2, 0), (3, 0)$. y-intercept: $(0, 6)$.
- Graph $y = x^2 - 4$.
 Vertex: $(0, -4)$. x-intercepts: $(-2, 0), (2, 0)$. y-intercept: $(0, -4)$.
- Graph $y = x^2 + 7x + 12$.
 Vertex: $(-3.5, -12.25)$. x-intercepts: $(-3, 0), (-4, 0)$. y-intercept: $(0, 12)$.
- Graph $y = x^2 - 9$.
 Vertex: $(0, -9)$. x-intercepts: $(-3, 0), (3, 0)$. y-intercept: $(0, -9)$.
- Graph $y = x^2 + 10x + 25$.
 Vertex: $(-5, 0)$. x-intercept: $(-5, 0)$. y-intercept: $(0, 25)$.
- Graph $y = x^2 - 16$.
 Vertex: $(0, -16)$. x-intercepts: $(-4, 0), (4, 0)$. y-intercept: $(0, -16)$.
- Graph $y = x^2 + 8x + 15$.
 Vertex: $(-4, -1)$. x-intercepts: $(-3, 0), (-5, 0)$. y-intercept: $(0, 15)$.
- Graph $y = x^2 - 25$.
 Vertex: $(0, -25)$. x-intercepts: $(-5, 0), (5, 0)$. y-intercept: $(0, -25)$.
- Graph $y = x^2 + 12x + 36$.
 Vertex: $(-6, 0)$. x-intercept: $(-6, 0)$. y-intercept: $(0, 36)$.
- Graph $y = x^2 - 49$.
 Vertex: $(0, -49)$. x-intercepts: $(-7, 0), (7, 0)$. y-intercept: $(0, -49)$.
- Graph $y = x^2 + 14x + 49$.
 Vertex: $(-7, 0)$. x-intercept: $(-7, 0)$. y-intercept: $(0, 49)$.

Section 1.4: Applications

- Find the area of a rectangle with length 10 and width 5.
 $A = 50$
- Find the area of a square with side length 6.
 $A = 36$
- Find the area of a triangle with base 8 and height 5.
 $A = 20$
- Find the area of a circle with radius 4.
 $A = 16\pi$
- Find the area of a rectangle with length 12 and width 3.
 $A = 36$
- Find the area of a square with side length 9.
 $A = 81$
- Find the area of a triangle with base 10 and height 6.
 $A = 30$
- Find the area of a circle with radius 5.
 $A = 25\pi$
- Find the area of a rectangle with length 15 and width 4.
 $A = 60$
- Find the area of a square with side length 11.
 $A = 121$
- Find the area of a triangle with base 12 and height 8.
 $A = 48$
- Find the area of a circle with radius 6.
 $A = 36\pi$