Math 1311
Homework 10 (Section 5.3- Section 5.5)

Record your answers to all the problems in the EMCF titled **" Homework 10"** .

1. Section 5.3 Skill Building Exercise S-8
   a) $y = 2.74x^{-8.71}$
   b) $y = 8.71x^{-2.74}$
   c) $y = 4.22x^{-8.74}$
   d) $y = 3.71x^{-8.74}$

2. Section 5.3 Skill Building Exercise S-10
   a) $y = 5.04x^{1.73}$
   b) $y = 1.74x^{5.73}$
   c) $y = 8.04x^{5.73}$
   d) $y = 3.04x^{1.73}$

3. Section 5.3 Exercise 2a.
   a) $D = 1.26 * h^{.525}$
   b) $D = .525 * h^{1.26}$
   c) $D = 2.13 * h^{0.89}$
   d) $D = 0.89 * h^{2.13}$

4. Model the following data with a power formula.

x	1	2	3	4	5
y	1	8	27	64	125

   a) $y = x^2$
   b) $y = x^3$
   c) $y = x^4$
   d) $y = x^5$

5. Model the following data with a power formula.

x	0.3	1.3	2.2	3.3	4.1
y	5.6	2	0.92	0.77	0.51

a) $y = 2.05x^{0.90}$
b) $y = 2.05x^{-0.90}$
c) $y = 0.90x^{2.05}$
d) $y = 0.90x^{-2.05}$

6. Section 5.3 Skill Building Exercise S-12
a) $y = 0.4x^2$
b) $y = 0.5x^2$
c) $y = 0.6x^2$
d) $y = 0.7x^2$

7. Section 5.4 Skill Building Exercise S-2
a) $w = \frac{t^3+2}{t^3+3}$

b) $w = \frac{t^2-3}{t^2-5}$

c) $w = \frac{t^3-3}{t^3-5}$

d) $w = \frac{t^2+2}{t^2+3}$

8. Use a formula to express w as a function of t if $w = s^2 + 1$ and $s = t - 3$.
a) $w = (t-3)^2 + 3$
b) $w = (t-3)^2 + 1$
c) $w = (t-3)^3 + 3$
d) $w = (t-3)^3 + 1$

9. If $f(x) = x^2 + x$ and $g(x) = x - 1$, find $f\big(g(x)\big)$.

a) $x^2 - x$
b) $x^3 - x$
c) $2x^2 - 2x$
d) $x^3 - 3x$

10. If $f(x) = x^2 + x$ and $g(x) = x - 1$, find $g\big(f(x)\big)$.

a) $x^2 + 2x - 2$
b) $2x^2 + 2x - 2$
c) $x^2 + x - 1$
d) $x^2 + x$

11. Find the limiting value of $7 + a * 0.6^t$

a) 7
b) 6
c) 5
d) 4

12. Section 5.4 Skill Building Exercise S-4

a) $w = t^2$
b) $w = t^2 + 1$
c) $w = t$
d) $w = t + 1$

13. Section 5.4 Skill Building Exercise S-6

a) $g\big(f(x)\big) = x^2 - x$; $f\big(g(x)\big) = x^2 + x - 1$

b) $f\big(g(x)\big) = x^2 - x$; $g\big(f(x)\big) = x^2 + x - 1$

c) $g\big(f(x)\big) = x^2 - 2x$; $f\big(g(x)\big) = x^2 + 3x - 1$

d) $f\big(g(x)\big) = x^2 - 2x$; $g\big(f(x)\big) = x^2 + 3x - 1$

14. Find the limiting value of $9 + a\ X\ 0.6^t$

a) 8

b) 9

c) 10

d) 11

15. Section 5.5 Skill Building Exercise S-2

a) $x = \pm\frac{3\sqrt{10}}{10}$

b) $x = \pm\frac{4\sqrt{10}}{10}$

c) $x = \pm\frac{8\sqrt{15}}{15}$

d) $x = \pm\frac{9\sqrt{15}}{15}$

16. Use the quadratic formula to solve $-2x^2 + 2x + 5 = 0$.

a) x = -1.16 and x = 2.16

b) x = -2.16 and x = 1.16

c) x = -3.16 and x = 3.16

d) x = -4.16 and x = 4.16

17. Use quadratic regression to find a model for the following data set.

x	1	3	5	6	8
y	2.2	9.7	27.7	35.2	62.1

a) $0.75x^2 - 0.90x - 0.35$

b) $0.85x^2 - 0.90x - 0.21$

c) $0.75x^2 + 0.80x + 0.35$

d) $0.85x^2 + 0.90x + 0.21$

18. Find the poles of $\frac{x}{x^2-3x+2}$

a) x= 2 and x=1

b) x= 3 and x=1

c) x= -2 and x=-1

d) x= -3 and x=-1

19. Section 5.5 Skill Building Exercise S-16

a) $x = 0 ; x = 7$
b) $x = 0 ; x = 8$
c)$x = 8 ; x = 10$
d) $x = 8 ; x = 9$

20. Section 5.5 Skill Building Exercise S-18

a) $y = 2$
b) $y = 3$
c) $y = 4$
d) $y = 5$