Math 1311

**Homework 10 (Section 5.3- Section 5.6)**

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 4a.

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 $f\left(x\right)=x^{2}+x$ and $g\left(x\right)=x-1$, find $f\left(g\left(x\right)\right).$

a) $x^{2}-x$

b) $x^{3}-x$

c) $2x^{2}-2x$

d) $x^{3}-3x$

10. If $f\left(x\right)=x^{2}+x$ and $g\left(x\right)=x-1$, find $g\left(f\left(x\right)\right).$

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) $g\left(f\left(x\right)\right)=x^{2}-x-1;f\left(g\left(x\right)\right)=x^{2}+x$

b) $f\left(g\left(x\right)\right)=x^{2}-x ;g\left(f\left(x\right)\right)=x^{2}+x-1$

c) $g\left(f\left(x\right)\right)=x^{2}-2x ;f\left(g\left(x\right)\right)=x^{2}+3x-1$

d) $f\left(g\left(x\right)\right)=x^{2}-2x ;g\left(f\left(x\right)\right)=x^{2}+3x-1$

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

a) $8$

b)$ 9$

c) $10$

d) $11$

15. Use the quadratic formula to solve 

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 5.6 Skill Building Exercise S-16

1. Not a polynomial function
2. Degree is 0.5

20. Section 5.6 Skill Building Exercise S-18

1. Not a polynomial function
2. Degree is 3.2