

# Answers to Odd Problems

## Chapter 6

### Section 6.1

1)  $x+6$

3)  $\frac{2x+3}{3-x}$   
 $x = -3/2$

5)  $\frac{3-x}{2x+3}$

7)  $-2x$

9)  $3x$

11)  $-2x^2 + 10x + 7$

13)  $10x^3 - 17x^2 - 35x - 12$

15)  $50x^2 + 55x + 9$

17)  $2x^2 + 1$

19) 9

21)  $-13/2$

23) 21

25) 1

27) -6

29) -2

31) 0

33) 73

35) 9

37) 99

39) 499

41) -1

43) 0

45) -9

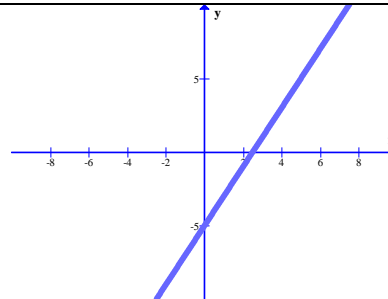
47) 8

### Section 6.2

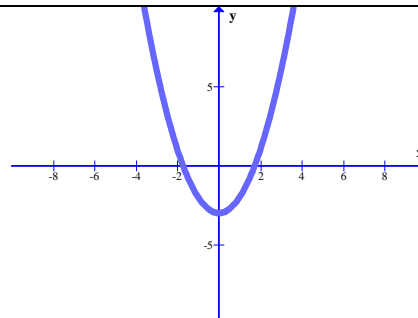
1) not one-to-one

3) is one-to-one

5) is one-to-one

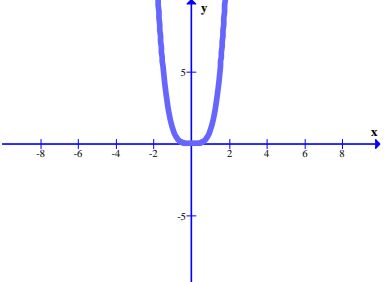


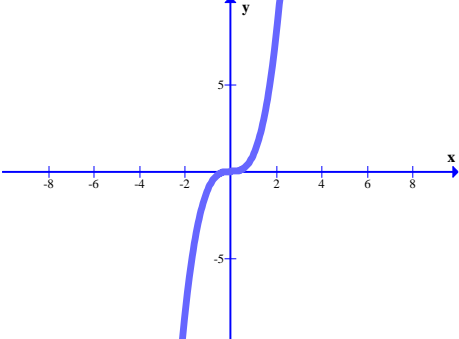
7) not one-to-one



### Section 6.1

# Answers to Odd Problems

<p>9) not one-to-one</p>	
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<p>11) is one-to-one</p>	
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13) not one-to-one

15) is one-to-one  $h^{-1} = \{ (3,0) (1,5) (11,7) (-3,9) \}$

17) is one-to-one  $m^{-1} = \{ (2,0) (3,2) (5,3) \}$

19)  $f^{-1}(x) = \frac{x+4}{2}$

21)  $g^{-1}(x) = 3x + 2$

23)  $h^{-1}(x) = \frac{2}{x}$

25)  $m^{-1}(x) = x^3$

27)  $f^{-1}(x) = \sqrt[3]{x-2}$

## Section 6.3

1) 343

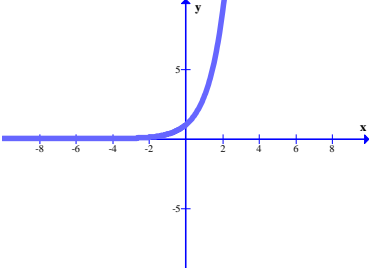
3) 1/6

5) 1/5

7) 2.378

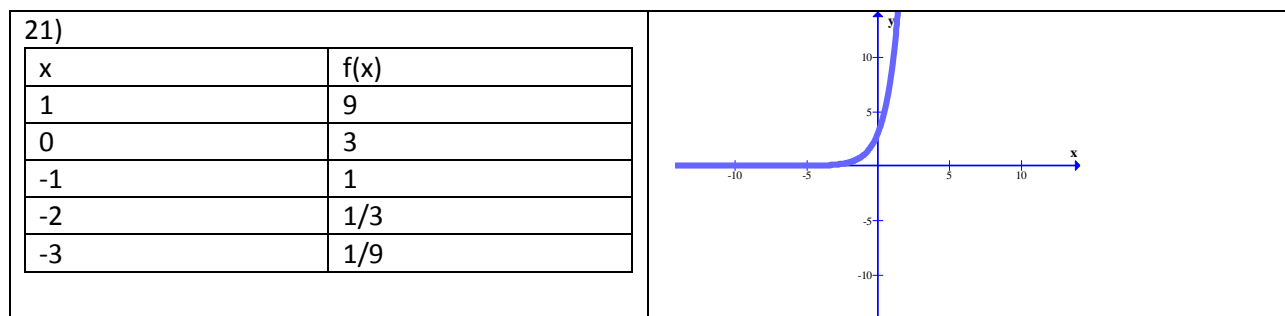
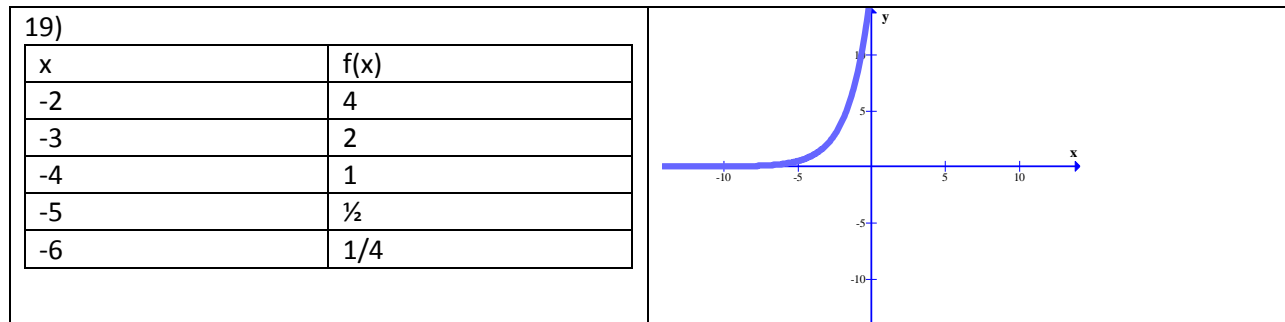
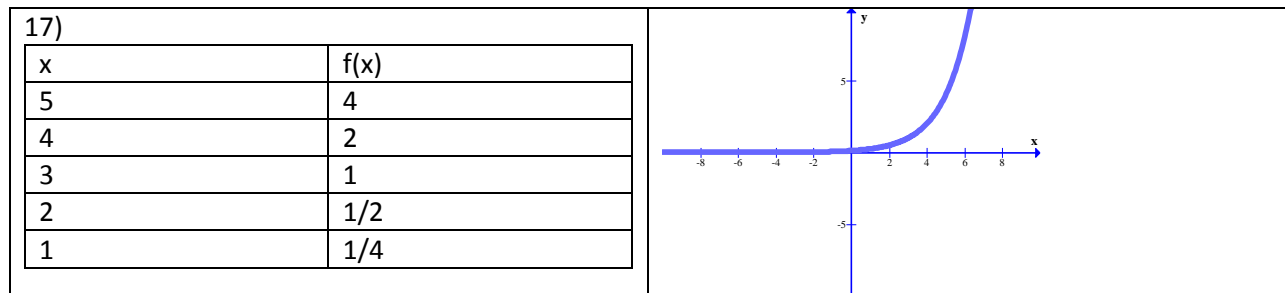
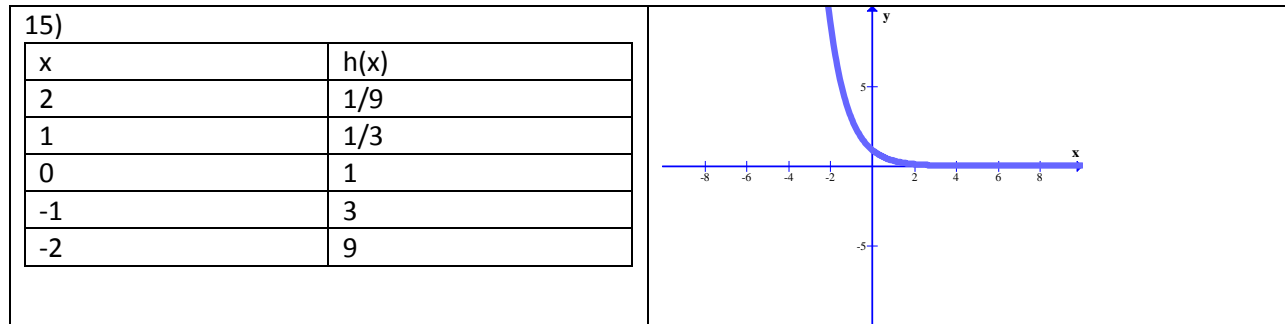
9) 0.015

11) 5.720

<p>13)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="padding: 5px;">x</th> <th style="padding: 5px;">f(x)</th> </tr> </thead> <tbody> <tr> <td style="padding: 5px;">2</td> <td style="padding: 5px;">9</td> </tr> <tr> <td style="padding: 5px;">1</td> <td style="padding: 5px;">3</td> </tr> <tr> <td style="padding: 5px;">0</td> <td style="padding: 5px;">1</td> </tr> <tr> <td style="padding: 5px;">-1</td> <td style="padding: 5px;">1/3</td> </tr> <tr> <td style="padding: 5px;">-2</td> <td style="padding: 5px;">1/9</td> </tr> </tbody> </table>	x	f(x)	2	9	1	3	0	1	-1	1/3	-2	1/9	
x	f(x)												
2	9												
1	3												
0	1												
-1	1/3												
-2	1/9												

# Answers to Odd Problems

## Section 6.3



23) 464 computers

25) 0.00005 Coulombs

27) \$1218.99

29) \$15172.22

# Answers to Odd Problems

## Section 6.4

1)  $\log_3 9 = 2$

7)  $\log_e x = y$

13)  $2^6 = 64$

19) 1

25) 0

31) 0

37) 3

43) 0.7782

3)  $\log_3 81 = 4$

9)  $\log_m z = 3$

15)  $6^1 = 6$

21) 1

27) 3

33) 2

39) 6

45) -0.4771

5)  $\log_3 \frac{1}{3} = -1$

11)  $3^4 = 81$

17)  $10^3 = x$

23) 0

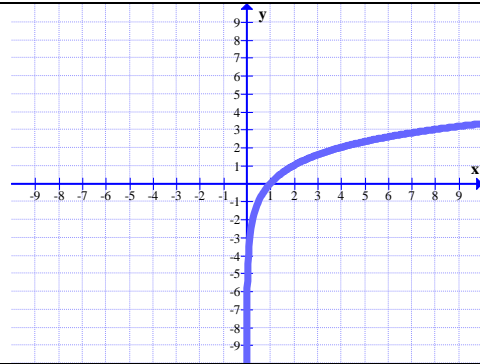
29) 1

35) 7

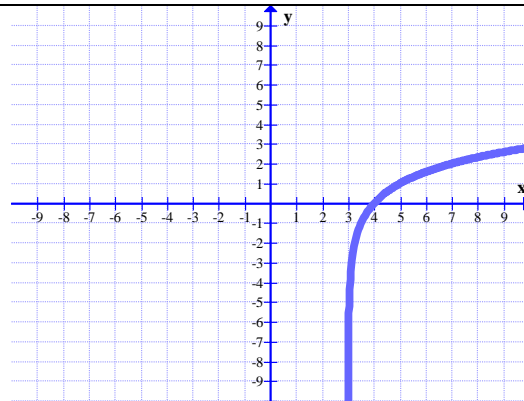
41) 5

47) -3

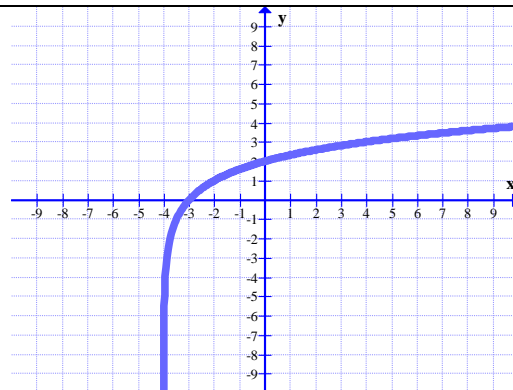
49)  $2^y = x$   
Domain  $x > 0$



51)  $2^y = x - 3$   
Domain:  $x > 3$



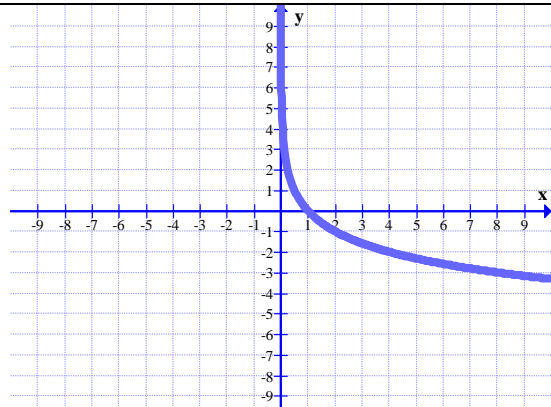
53)  $2^y = x + 4$   
Domain:  $x > -4$



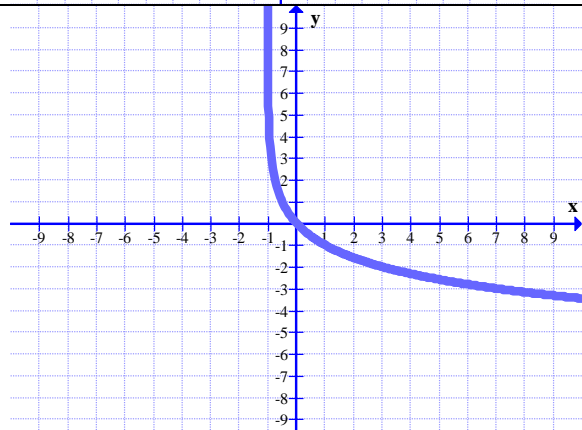
# Answers to Odd Problems

## Section 6.4

55)  $\left(\frac{1}{2}\right)^y = x$   
Domain:  $x > 0$



57)  $\left(\frac{1}{2}\right)^{y+1} = x + 1$   
Domain:  $x > -1$



## Section 6.5

1) 7.39

3) 0.37

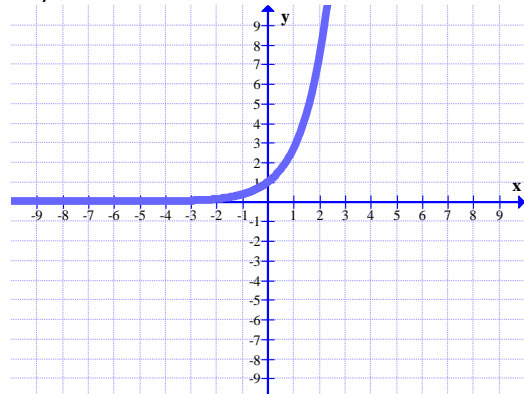
5) 23.14

7) 1

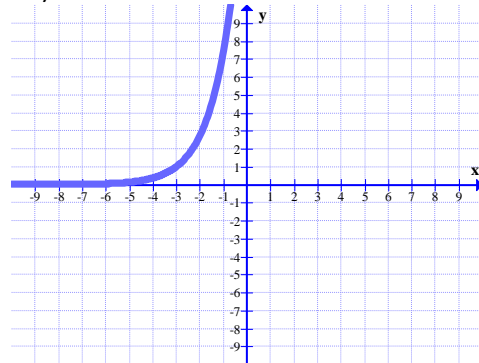
9) 3

11) -1.39

13)



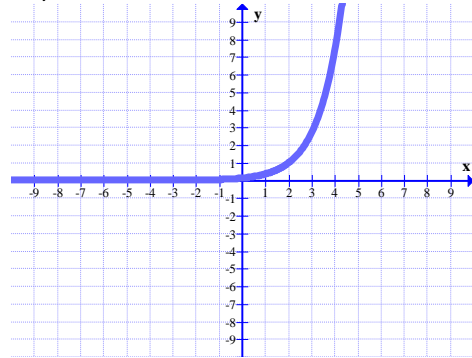
15)



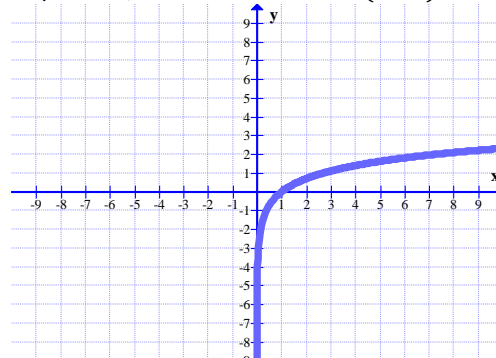
# Answers to Odd Problems

## Section 6.5

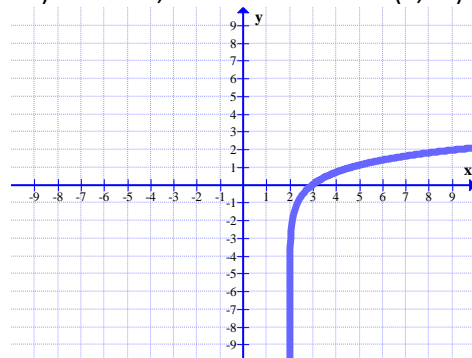
17)



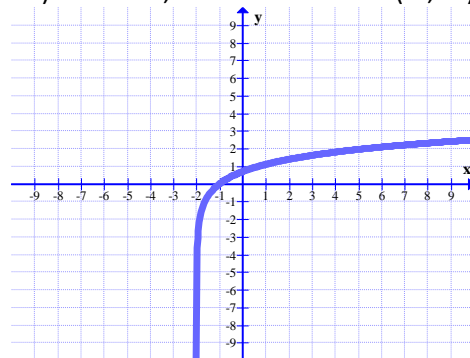
19)  $e^y = x$ , Domain  $x > 0$  or  $(0, \infty)$



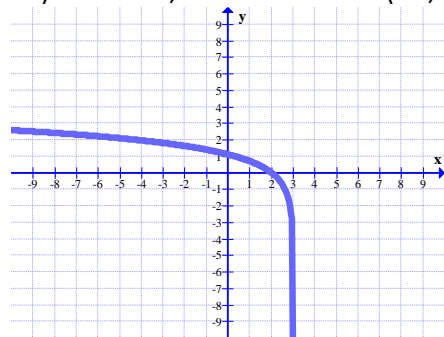
21)  $e^y = x-2$ , Domain:  $x > 2$  or  $(2, \infty)$



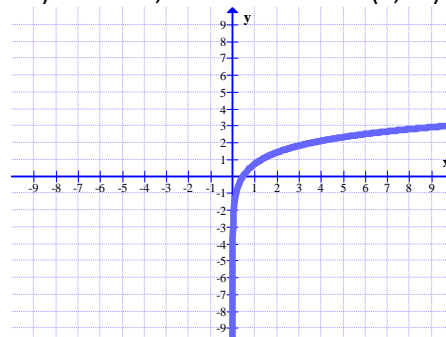
23)  $e^y = x+2$ , Domain:  $x > -2$  or  $(-2, \infty)$



25)  $e^y = 3 - x$ , Domain:  $x < 3$  or  $(-\infty, 3)$



27)  $e^y = 2x$ , Domain  $x > 0$  or  $(0, \infty)$



29) \$15219.62

31) \$598.61

## Answers to Odd Problems

### Section 6.6

- |   |                               |                                     |
|---|-------------------------------|-------------------------------------|
| 1) 4  | 3) 6                          | 5) 5                                |
| 7) 5  | 9) 1                          | 11) 18                              |
| 13a) false                                    | 15a) false                    | 17a) false                          |
| 13b) true                                     | 15b) true                     | 17b) true                           |
| 19) $2\log_3x + 3\log_3y$                     | 21) $2 + 2\log_5x + 6\log_5y$ | 23) $\log_2x + 3\log_2y - 2\log_2z$ |
| 25) $\log_2x + \log_2y - 2\log_2w - 5\log_2z$ | 27) $-3\log_4x + \log_4y$     | 29) $2\log_2x + \frac{1}{3}\log_2y$ |
| 31) $\log_2x^3y^4$                            | 33) $\log_3x^2y^4z$           | 35) $\log_2 \frac{x^5y^3}{z}$       |
| 37) $\log \frac{x^4}{y^2z^3}$                 | 39) $\log_3 \frac{yz}{x^2}$   | 41) $\ln \frac{x^4}{z^2}$           |
| 43) 1.58                                      | 45) 1.46                      | 47) -0.31                           |
| 49) 1.80                                      | 51) -0.95                     |                                     |

### Section 6.7

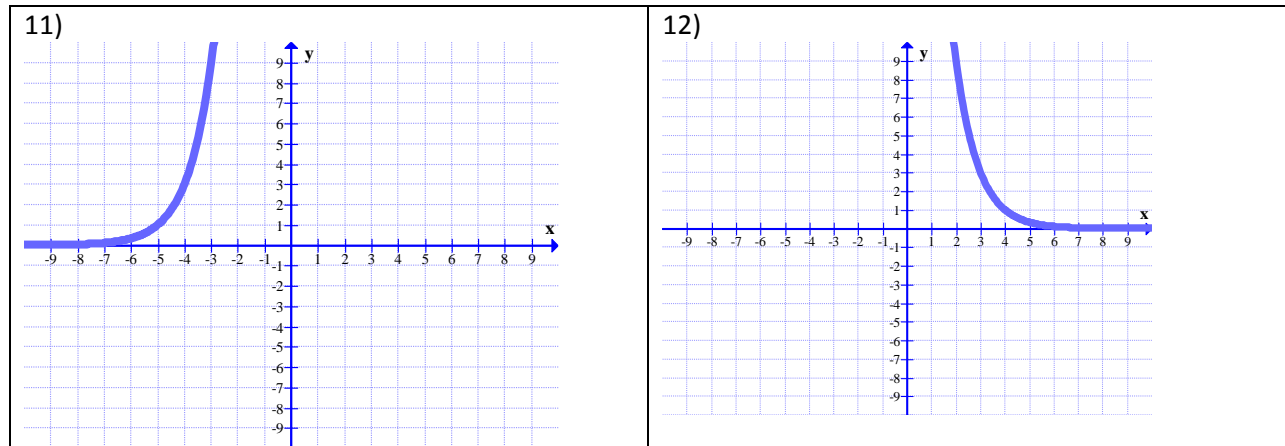
- |   |   |  |
|---|---|--|
| 1) 4                                    | 3) 4  | 5) -4  |
| 7) -2                                   | 9) 1/5                                      | 11) 1/2                                      |
| 13) $x = \log_36$ (approx 1.63)         | 15) $x = \ln(12)$ (approx 2.48)             | 17) $x = \log 4$ (approx 0.60)               |
| 19) $x = \frac{\ln 4}{2}$ (approx 0.69) | 21) $x = \frac{\ln(3)}{.06}$ (approx 18.31) | 23) $x = \frac{\ln(2)}{.025}$ approx (27.73) |
| 25) $x = 9$                             | 27) $x = e$ (approx 2.72)                   | 29) $x = 11$                                 |
| 31) $x = 25/12$                         | 33) $x = 9/8$                               | 35) $x = 9$                                  |
| 37) $x = 16$                            | 39) $x = 3/2$                               | 41) $x = 3/2$                                |
| 43) $x = 2$                             | 45) $x = 8$                                 | 47) $x = 10$                                 |
| 49) $x = 3$                             | 51) $x = 3$                                 |  |
| $x = -9$ is extraneous                  | $x = -9$ is extraneous                      |  |
| 57) about 8 hours                       | 59) about 46 years                          |  |
| 61) about 11.6 years                    | 63) about 10.1 years                        |  |

### Chapter 6 Review

- |   |                                  |                      |
|---|----------------------------------|----------------------|
| 1) $x^2 - x - 6$  | 2) $\frac{x^2 - 3x}{2x - 6}$     | 3) $4x^2 - 30x + 54$ |
| 4) -6   | 5) -4                            | 6) -78               |
| 7) is one-to-one $f^{-1} = \{(-1,0) (-4,1) (4,2) (5,3)\}$ |                                  | 8) not one-to-one    |
| 9) $f^{-1}(x) = \frac{x-8}{6}$                            | 10) $h^{-1}(x) = \frac{4x-3}{2}$ |                      |

# Answers to Odd Problems

## Chapter 6 Review



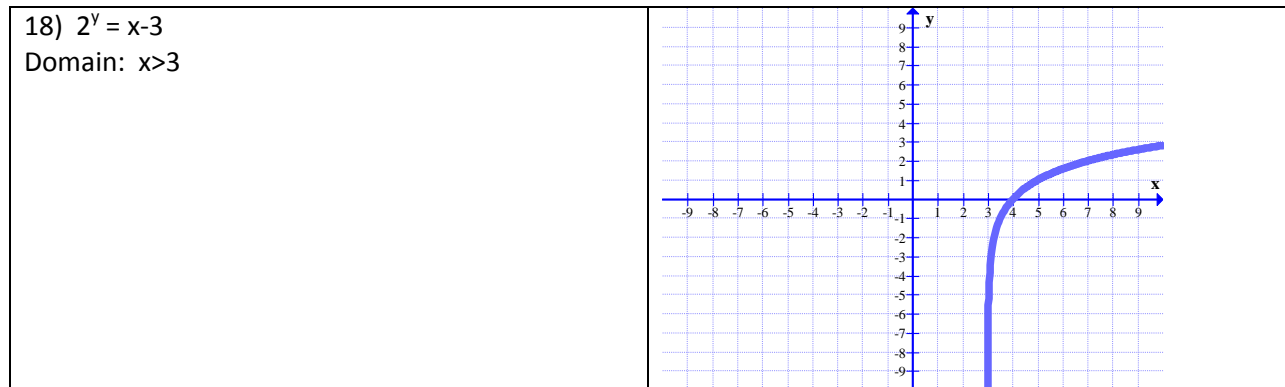
13) \$44,649.70

14)  $\ln(y) = 2$

15) 4

16) 0

17) 10



19)  $3\log_2x - 4\log_2y - 2\log_2z$

20)  $\log_4x + 3\log_4y + 5\log_4z$

21)  $\log_2 \frac{x^3}{y^4}$

22)  $\ln \frac{x^5}{yz^3}$

23)  $x = 9$

24)  $x = -5$

25)  $x = -\log_3 6$  (approx -1.63)

26)  $x = \ln(2/3)$  (approx -0.41)

27)  $x = 1/2$

28)  $x = 33$

29)  $x = 2$

30)  $x = 3$

31) about 18.3 years