MATH 110 Sample 02 Exam 1

For each problem, show your work in the space provided.
Write your Final Answer (and the letter answer) on the Answer Sheet provided.

Dressler
Renton Tech College Su2005

---

1. Evaluate: $\log_4 64$ [A] 3 [B] $\frac{1}{12}$ [C] 12 [D] $\frac{1}{3}$

2. Given $\log_{10} 5 = T$ and $\log_{10} 2 = U$, find $\log_{10} 10$.

   [A] 10^{T+U} [B] 10^{TU} [C] $T + U$ [D] TU

3. Find x if $e^{5.2x} = 8$, and you are given $\ln 8 = 2.0794$.

   [A] 0.3999 [B] 0.1923 [C] 2.5007 [D] 0.6500

4. Evaluate: $\log_8\left(\frac{1}{64}\right)$ [A] –2 [B] –3 [C] 2 [D] 3

MATH 110 Sample 02 Exam 1

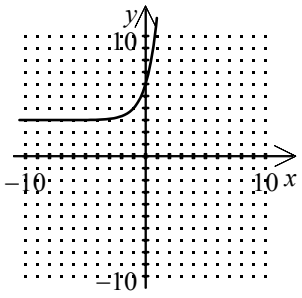
For each problem, show your work in the space provided.
Write your Final Answer (and the letter answer) on the Answer Sheet provided.

Dressler
Renton Tech College Su2005

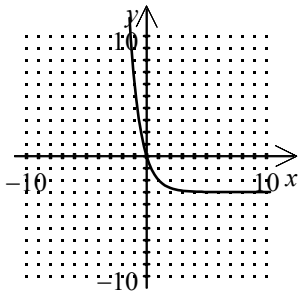
Graph:

5. $f(x) = \left(\frac{1}{3}\right)^{x-1} - 3$

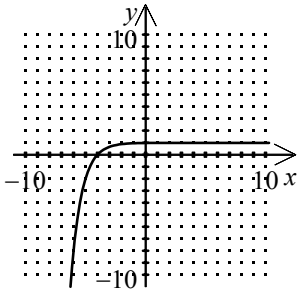
[A]



[B]



[C]



[D] none of these

MATH 110 Sample 02 Exam 1

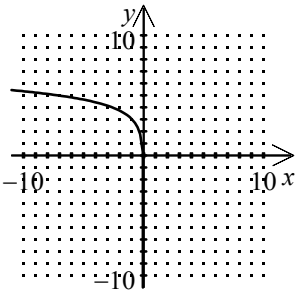
For each problem, show your work in the space provided.
Write your Final Answer (and the letter answer) on the Answer Sheet provided.

Dressler
Renton Tech College Su2005

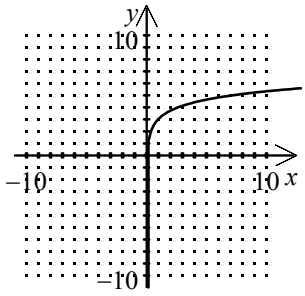
Graph:

6. $f(x) = \left(\frac{1}{2}\right)^x$

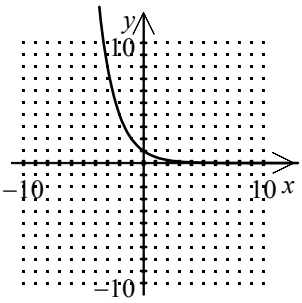
[A]



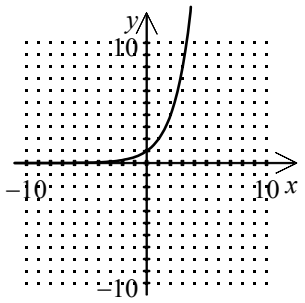
[B]



[C]



[D]



MATH 110 Sample 02 Exam 1

For each problem, show your work in the space provided.
Write your Final Answer (and the letter answer) on the Answer Sheet provided.

Dressler
Renton Tech College Su2005

---

7. The amount of money A accrued at the end of n years when a certain amount P is invested at a compound annual rate r is given by $A = P(1+r)^n$. If a person invests \$180 at 6% interest compounded annually, find the approximate amount obtained at the end of 15 years.

   [A] \$431 [B] \$1260 [C] \$18,900 [D] \$207,526

8. Write as a single logarithm: $9 \log_b x + 2 \log_b y$

   [A] $\log_b(18xy)$ [B] $\log_b\left(\frac{9x}{2y}\right)$ [C] $\log_b(x^9 y^2)$ [D] $\log_b\left(\frac{x^9}{y^2}\right)$

9. Write the equation $3^2 = 9$ in logarithmic form.

   [A] $\log_9 3 = 2$ [B] $\log_{\frac{1}{2}} 9 = 3$ [C] $\log_2 9 = 3$ [D] $\log_3 9 = 2$

MATH 110 Sample 02 Exam 1

For each problem, show your work in the space provided.
Write your Final Answer (and the letter answer) on the Answer Sheet provided.

Dressler
Renton Tech College Su2005

---

10. Find ln 265. Round your answer to four decimal places.

Solve:

11. $x^2 + y^2 = 4$

$\frac{x^2}{9} + \frac{y^2}{49} = 1$

[A] $\{(0, -7), (0, 7)\}$ [B] $\varnothing$ [C] $\{(0, -3), (0, 3)\}$ [D] $\{(-3, 0), (3, 0)\}$

12. $x^2 + y^2 = 36$

$x + y = 6$

[A] $\{(0, 6), (6, 0)\}$ [B] $\{(6, -6), (-6, -6)\}$

[C] $\{(0, -6), (-6, 0)\}$ [D] $\{(0, 0), (6, -6)\}$

MATH 110 Sample 02 Exam 1

For each problem, show your work in the space provided.
Write your Final Answer (and the letter answer) on the Answer Sheet provided.

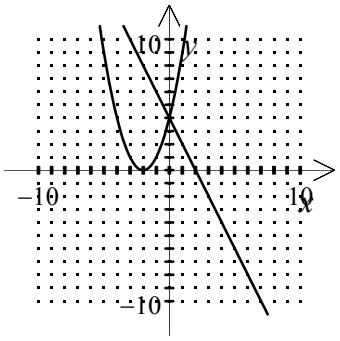
Dressler
Renton Tech College Su2005

Solve:

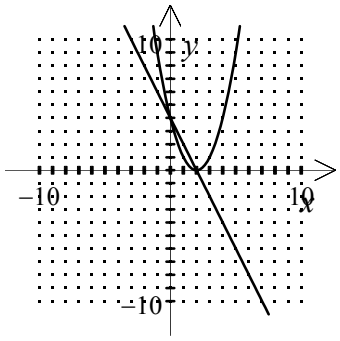
13. $x^3 + x^2 - 25x - 25 = 0$ [A] $-1, -5, 5$ [B] $1, 5$ [C] $-5, 1, 5$ [D] $-1, 25$

14. Graph the system:
$y = (x + 2)^2$
$y = -2x + 4$

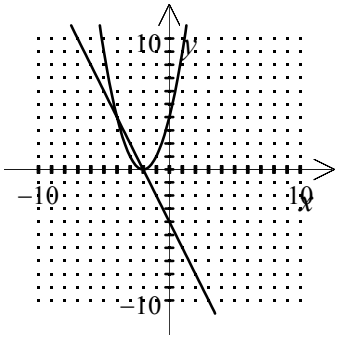
[A]



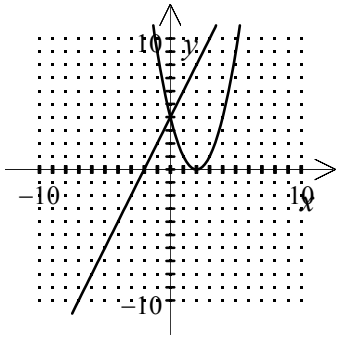
[B]



[C]



[D]



MATH 110 Sample 02 Exam 1

For each problem, show your work in the space provided.
Write your Final Answer (and the letter answer) on the Answer Sheet provided.

Dressler
Renton Tech College Su2005

---

15. Solve the system:

$x^2 + y^2 = 63$

$x^2 - 3y^2 = 27$

[A] $(3\sqrt{6}, 3), (3\sqrt{6}, -3)$
$(-3\sqrt{6}, 3), (-3\sqrt{6}, -3)$

[B] $(3\sqrt{6}, 3), (3\sqrt{6}, -3)$

[C] $(1, \sqrt{62}), (1, -\sqrt{62})$
$(-1, \sqrt{62}), (-1, -\sqrt{62})$

[D] $(-3\sqrt{6}, 3), (-3\sqrt{6}, -3)$

Solve:

16. $2a^{2/5} - 5a^{1/5} + 2 = 0$

17. $2x^2 + x - 1 = 0$

MATH 110 Sample 02 Exam 1

For each problem, show your work in the space provided.
Write your Final Answer (and the letter answer) on the Answer Sheet provided.

Dressler
Renton Tech College Su2005

Solve:

18. $\sqrt{x+34} = x+14$

19. Solve the system: $x^2 + y^2 = 49$
$y = -2x + 2$

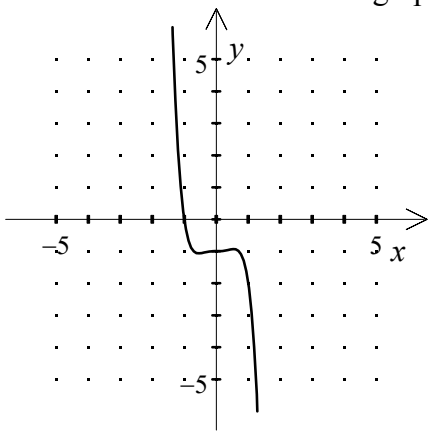
MATH 110 Sample 02 Exam 1

For each problem, show your work in the space provided.
Write your Final Answer (and the letter answer) on the Answer Sheet provided.

Dressler
Renton Tech College Su2005

---

20. Which function matches the graph?



[A] $f(x) = -x^5 + x^2 + x$

[B] $f(x) = -2x^4 + x^2 - 1$

[C] $f(x) = -2x^5 + x^3 - 1$

[D] $f(x) = -2x^4 - x^2 + 1$

21. Use synthetic division to find $f(-5)$ if $f(x) = 2x^6 - 49x^4 + 3x^3 - 14x^2 + 5x + 8$.

MATH 110 Sample 02 Exam 1

For each problem, show your work in the space provided.
Write your Final Answer (and the letter answer) on the Answer Sheet provided.

Dressler
Renton Tech College Su2005

---

22. Use the Intermediate Value Theorem to determine which interval contains an x-intercept of the function.
$f(x) = 8x^5 + 5x^4 - 6x^3 - x^2 - 2x - 2$

[A] [–2, –1] [B] none of these [C] [–9, –8] [D] [3, 4]

23. Use the Remainder Theorem to find $P(-4)$ if $P(x) = x^6 + 3x^5 + x^3 - 4x^2 - 27$. Also find the quotient polynomial that leads to the remainder.

[A] 852; $x^5 + 7x^4 + 4x^3 + 17x^2 - 64x - 224$

[B] 869; $x^5 - x^4 + 4x^3 - 15x^2 + 56x - 224$

[C] 852; $x^5 - x^4 + 4x^3 - 15x^2 + 56x - 224$

[D] 869; $x^5 + 7x^4 + 4x^3 + 17x^2 - 64x - 224$

MATH 110 Sample 02 Exam 1

For each problem, show your work in the space provided.
Write your Final Answer (and the letter answer) on the Answer Sheet provided.

Dressler
Renton Tech College Su2005

---

24. Use Descartes' Rule of Signs to determine how many positive and how many negative real zeros the polynomial functions may have. Do not attempt to find the zeros.

$f(x) = x^6 - 4x^5 + x^4 - 2x^3 - 2x^2 + x + 5$

[A] 5, 3, or 1 positive real zeros; 2 or no negative real zeros

[B] 4, 2, or no positive real zeros; 3 or 1 negative real zeros

[C] 2 or no positive real zeros; 4, 2, or no negative real zeros

[D] 4, 2, or no positive real zeros; 2 or no negative real zeros

MATH 110 Sample 02 Exam 1

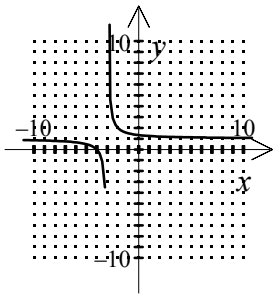
For each problem, show your work in the space provided.
Write your Final Answer (and the letter answer) on the Answer Sheet provided.

Dressler
Renton Tech College Su2005

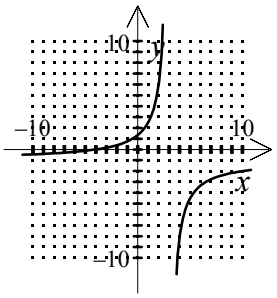
---

25. Graph: $f(x) = \dfrac{x+4}{x+3}$

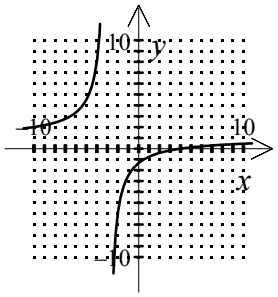
[A]



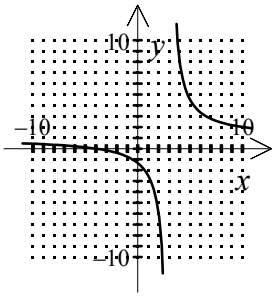
[B]



[C]



[D]



MATH 110 Sample 02 Exam 1

For each problem, show your work in the space provided.
Write your Final Answer (and the letter answer) on the Answer Sheet provided.

Dressler
Renton Tech College Su2005

---

[1] _____

[2] _____

[3] _____

[4] _____

[5] _____

[6] _____

[7] _____

[8] _____

[9] _____

[10] _____

[11] _____

[12] _____

[13] _____

[14] _____

[15] _____

MATH 110 Sample 02 Exam 1

For each problem, show your work in the space provided.
Write your Final Answer (and the letter answer) on the Answer Sheet provided.

Dressler
Renton Tech College Su2005

---

[16] _____

[17] _____

[18] _____

[19] _____

[20] _____

[21] _____

[22] _____

[23] _____

[24] _____

[25] _____

MATH 110 Sample 02 Exam 1

For each problem, show your work in the space provided.
Write your Final Answer (and the letter answer) on the Answer Sheet provided.

Dressler
Renton Tech College Su2005

---

[1] [A]

---

[2] [C]

---

[3] [A]

---

[4] [A]

---

[5] [B]

---

[6] [C]

---

[7] [A]

---

[8] [C]

---

[9] [D]

---

[10] 5.5797

MATH 110 Sample 02 Exam 1

For each problem, show your work in the space provided.
Write your Final Answer (and the letter answer) on the Answer Sheet provided.

Dressler
Renton Tech College Su2005

---

[11] [B]

---

[12] [A]

---

[13] [A]

---

[14] [A]

---

[15] [A]

---

[16] $\left\{32, \frac{1}{32}\right\}$

---

[17] $\frac{1}{2}, -1$

---

[18] -9

---

[19] $\left(\frac{4+\sqrt{241}}{5}, \frac{2-2\sqrt{241}}{5}\right), \left(\frac{4-\sqrt{241}}{5}, \frac{2+2\sqrt{241}}{5}\right)$

MATH 110 Sample 02 Exam 1

For each problem, show your work in the space provided.
Write your Final Answer (and the letter answer) on the Answer Sheet provided.

Dressler
Renton Tech College Su2005

---

[20] [C]

---

[21] –117

---

[22] [A]

---

[23] [B]

---

[24] [D]

---

[25] [A]