

MATH 100

PRACTICE

FINAL EXAM

Lecture Version

Name: _____

ID Number: _____

Instructor: _____

Section: _____

Do not open this booklet until told to do so!

On the separate answer sheet, fill in your name and identification number and code the appropriate spaces with a No. 2 pencil. Use the spaces marked “Year” under Birth Date to code the version of the exam you are taking.

The exam has 50 multiple choice questions. Select the one best answer for each problem. Use a No. 2 pencil to mark your answers on the answer sheet. Be sure to clearly mark your answer with a heavy mark. Should you change an answer, be sure to erase your original answer completely.

The test booklet has a limited amount of space with each problem. If the space is not sufficient to show your work, use the back of the previous page. Label your work. Mark your answer in the exam booklet and on the answer sheet. Answer all questions. There is no penalty for guessing.

Good Luck!

5. Find the following sum. 5._____

$$7(3x^2 + 2x - 5) + 2(-x^2 + 3)$$

- a) $20x^2 + 14x - 32$ b) $19x^2 + 2x - 2$
c) $28x^2 + 14x - 28$ d) $19x^2 + 14x - 29$

6. Find the following product. 6._____

$$(1 - 3x)(x^2 + 2x - 5)$$

- a) $-3x^3 - 5x^2 + 17x - 5$ b) $x^2 - x - 4$
c) $-3x^3 + 7x^2 + 13x - 5$ d) $-7x^2 + 17x - 5$

7. Factor out the greatest common factor from the following polynomial. 7._____

$$3a^7b^3 - 21a^4b^3$$

- a) $a^4b^3(3a^3 - 21)$ b) $3a^4b^3(a^3 - 7)$
c) $a^4b^3(3a^3b - 21ab)$ d) $3a^4b^3(a^3b - 7ab)$

8. Factor the following polynomial by grouping. 8._____

$$15ab - 6b + 10a - 4$$

- a) $(3b + 2)(5a - 2)$ b) $(3b - 2)(5a + 2)$
c) $(3b + 2)(5a + 2)$ d) $(3b - 2)(5a - 2)$

9. Factor the following trinomial. 9._____

$$6x^2 + 11x - 10$$

- a) $(3x - 2)(2x - 5)$ b) $(3x + 2)(2x - 5)$
c) $(3x - 2)(2x + 5)$ d) $(x + 6)(11x - 10)$

23. Solve the following rational equation. 23._____

$$\frac{2}{x+3} - \frac{1}{2x+1} = \frac{8}{2x^2 + 7x + 3}$$

- a) $\{-3\}$ b) $\{3\}$
c) $\{-\frac{1}{2}\}$ d) No solutions

24. Solve the following radical equation. 24._____

$$\sqrt{3x+13} = x+1$$

- a) $\{-3\}$ b) $\{4\}$
c) $\{-3,4\}$ d) No solutions.

25. Solve the following inequality. Write the solution set in interval notation. 25._____

$$2x + 1 \leq 3x - 2$$

- a) $(-\infty, -3]$ b) $[3, \infty)$
c) $(-\infty, 3]$ d) $[-3, \infty)$

26. Solve the following inequality. Write the solution set in interval notation. 26._____

$$2 \geq \frac{5-3x}{4} > -3$$

- a) $(-1, \frac{17}{3})$ b) $(-1, \frac{17}{3}]$
c) $[-1, \frac{17}{3})$ d) $[-1, \frac{17}{3}]$

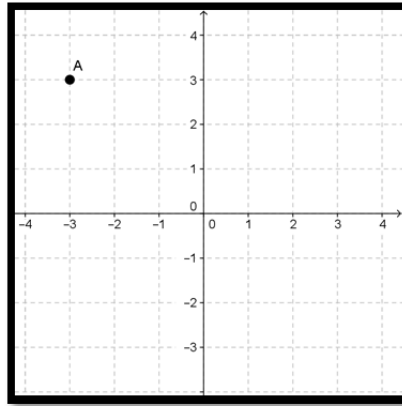
27. Solve the following quadratic inequality. Write the solution set in interval notation. 27._____

$$x^2 - 2x - 35 < 0$$

- a) $(-5,7)$ b) $(-\infty, -5) \cup (7, \infty)$
c) $[-5,7]$ d) $(-\infty, -5] \cup [7, \infty)$

32. Consider the following graph of the point A.

32._____



Which quadrant does A lie in?

- a) Quadrant I
- b) Quadrant II
- c) Quadrant III
- d) Quadrant IV

33. Decide whether the following relation defines a function.

33._____

$$\{(0,1), (1,2), (-1,0), (2, -3), (3, -2)\}$$

- a) Yes, this is a function.
- b) No, this is not a function.

34. Give the domain and range of the following relation.

34._____

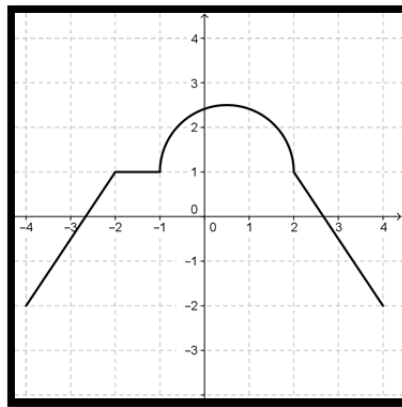
$$y = \sqrt{x - 1}$$

- a) Domain is $(-\infty, \infty)$ and Range is $(-\infty, \infty)$
- b) Domain is $[1, \infty)$ and Range is $(0, \infty)$
- c) Domain is $(1, \infty)$ and Range is $[0, \infty)$
- d) Domain is $[1, \infty)$ and Range is $[0, \infty)$

35. For the function $f(x) = 3x^2 - 7$, find $f(-3)$. 35._____

- a) -34
- b) 20
- c) -16
- d) 2

36. Determine the intervals of the domain for which the following function 36._____ is decreasing.

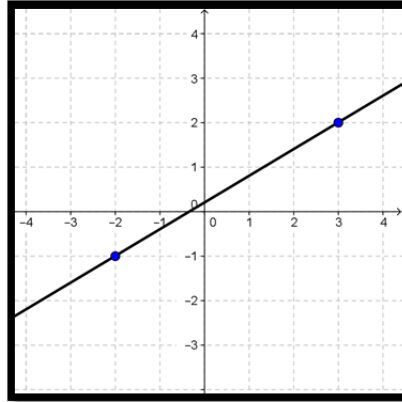


- a) $[-4, -2] \cup [-1, 0.5]$
- b) $[-2, -1]$
- c) $[0.5, 4]$
- d) $[-2, 2.5]$

37. Which of the following pairs of points has slope $2/9$? 37._____

- a) (1,3) and (2, -7)
- b) (1,2) and (3, -7)
- c) (2,3) and (-7,1)
- d) (3,1) and (-7,2)

38. Given the following graph of a linear function, what is the slope? 38. _____



- a) $3/5$
- b) $5/3$
- c) $-3/5$
- d) $-5/3$

39. Write the equation of the line passing through the point $(-3,7)$ with slope zero. 39. _____

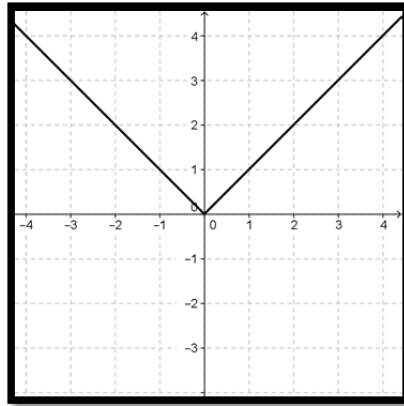
- a) $x = -3$
- b) $y = -3$
- c) $x = 7$
- d) $y = 7$

40. Write the equation in slope-intercept form for a line passing through the point $(-3,2)$ that is parallel to $4x - y = 7$. 40. _____

- a) $y = 4x + 14$
- b) $y = -4x - 10$
- c) $y = -\frac{1}{4}x + \frac{5}{4}$
- d) $y = \frac{1}{4}x + \frac{11}{4}$

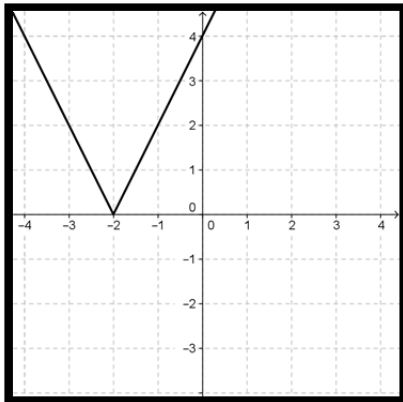
43. The following is a graph of $y = f(x)$.

43. _____

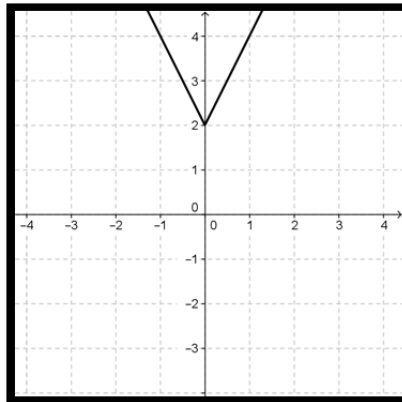


Which is the graph of $y = 2f(x) - 2$?

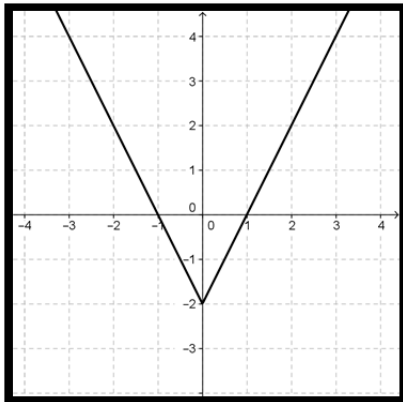
a)



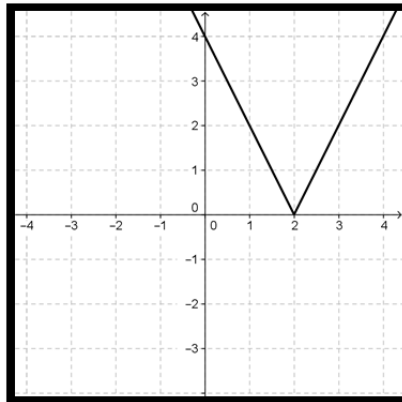
b)



c)



d)



49. Use the following table to evaluate $(g \circ f)(-1)$.

49._____

x	$f(x)$	$g(x)$
-3	5	-1
-1	-3	5
5	8	-3
8	-1	8

a) -3

b) -1

c) 5

d) 8

50. Let $f(x) = -2x^2 + 1$ and $g(x) = 4x - 3$. Find $(f \circ g)(x)$.

50._____

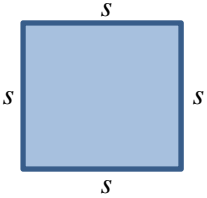
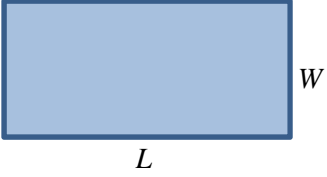
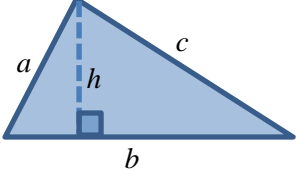
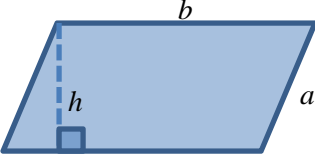
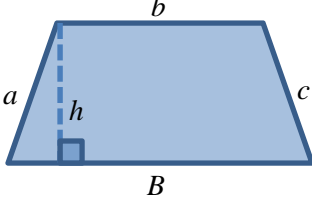
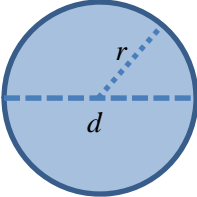
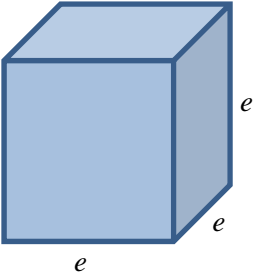
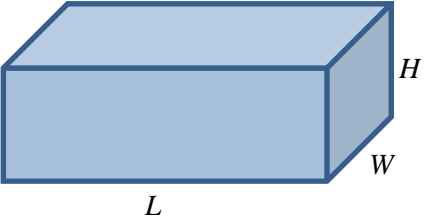
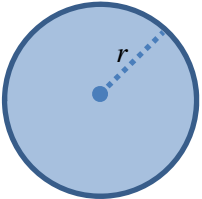
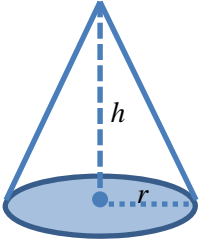
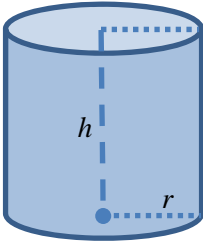
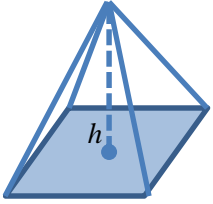
a) $-8x^3 + 6x^2 + 4x - 3$

b) $-2x^2 + 4x - 2$

c) $-8x^2 + 5$

d) $-32x^2 + 48x - 17$

Geometry Formulas

<p>Square Perimeter: $P = 4s$ Area: $A = s^2$</p> 	<p>Rectangle Perimeter: $P = 2L + 2W$ Area: $A = LW$</p> 	<p>Triangle Perimeter: $P = a + b + c$ Area: $A = \frac{1}{2}bh$</p> 
<p>Parallelogram Perimeter: $P = 2a + 2b$ Area: $A = bh$</p> 	<p>Trapezoid Perimeter: $P = a + b + c + B$ Area: $A = \frac{1}{2}h(b + B)$</p> 	<p>Circle Diameter: $d = 2r$ Circumference: $C = 2\pi r = \pi d$ Area: $A = \pi r^2$</p> 
<p>Cube Volume: $V = e^3$ Surface Area: $S = 6e^2$</p> 	<p>Rectangular Solid Volume: $V = LWH$ Surface Area: $S = 2HW + 2LW + 2LH$</p> 	<p>Sphere Volume: $V = \frac{4}{3}\pi r^3$ Surface Area: $S = 4\pi r^2$</p> 
<p>Cone Volume: $V = \frac{1}{3}\pi r^2 h$ Surface Area: $S = \pi r\sqrt{r^2 + h^2}$ <i>(excludes the base)</i></p> 	<p>Right Circular Cylinder Volume: $V = \pi r^2 h$ Surface Area: $S = 2\pi rh + 2\pi r^2$ <i>(includes top and bottom)</i></p> 	<p>Right Pyramid Volume: $V = \frac{1}{3}Bh$ <i>B = area of the base</i></p> 

Answer Key:

1. D	11. D	21. D	31. C	41. A
2. C	12. D	22. A	32. B	42. C
3. C	13. A	23. B	33. A	43. C
4. B	14. C	24. B	34. D	44. D
5. D	15. C	25. B	35. B	45. A
6. A	16. D	26. C	36. C	46. B
7. B	17. C	27. A	37. C	47. A
8. A	18. A	28. B	38. A	48. D
9. C	19. B	29. C	39. D	49. B
10. B	20. B	30. D	40. A	50. D