

Practice problems for final Math 95

FINAL EXAMINATION

NAME _____

TEST FORM G

(no geometry)

CLASS _____

SCORE _____

GRADE _____

ANSWERS

- Evaluate $3x^2 - 2xy$ for $x = -3$ and $y = 4$.
 - 3
 - 3
 - 51
 - 105
- Compute and simplify. $14 \cdot 8 \div 4 \cdot 2 - 1$
 - 55
 - 13
 - 28
 - 27
- Solve. $2(y-3) - 4(y-6) = 10$
 - 14
 - 20
 - $-\frac{19}{2}$
 - 4
- Solve. $4 - 2x \leq 3x - 6$
 - $\{x | x \geq 2\}$
 - $\{x | x \geq -2\}$
 - $\left\{x \mid x \geq \frac{2}{5}\right\}$
 - $\{x | x \leq 2\}$
- What percent of 71 is 22.01?
 - 0.31%
 - 31%
 - 3.26%
 - 15.63%
- Factor. $2x^2 - 17x + 21$
 - $(2x-3)(x+7)$
 - $(2x-3)(x-7)$
 - $(2x-7)(x+3)$
 - $(2x-7)(x-3)$
- Identify the graph of the solution set for $-3 < -5t - 8 \leq 2$.
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ANSWERS

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8. Solve, if possible, using the elimination method.

$$3x - 10y = 46,$$

$$x + 2y = 10$$

What is the y-coordinate?

- a) 1 b) -1 c) 0 d) not possible

9. Simplify. $(-3x^3y^{-4})^2$

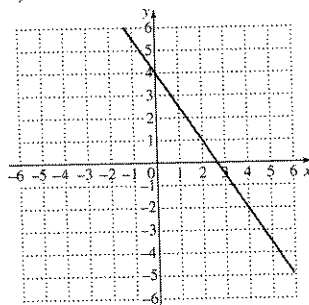
- a) $\frac{9x^6}{y^8}$ b) $\frac{9x^5}{y^2}$ c) $\frac{-6x^6}{y^8}$ d) $\frac{-6x^5}{y^2}$

10. Solve. $x^2 + 5x = 8$

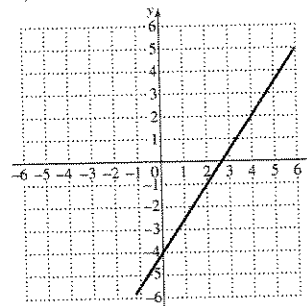
- a) ~~$\frac{5 \pm \sqrt{57}}{2}$~~ b) $\frac{-5 \pm \sqrt{7}i}{2}$ c) $\frac{-5 \pm \sqrt{57}}{2}$ d) $\frac{5 \pm \sqrt{7}i}{2}$

11. Graph. $3x - 2y = 8$

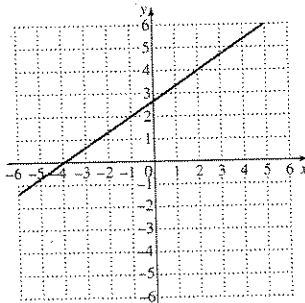
a)



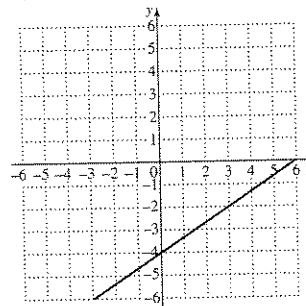
b)



c)



d)



TEST FORM G

12. Multiply. $(4a-3)(2a+5)$

- a) $8a^2 + 26a - 15$ b) $8a^2 + 14a + 15$
 c) $8a^2 + 14a - 15$ d) $8a^2 + 15a - 15$

13. Divide and, if possible, simplify. $\frac{4x^2 - 9}{x + 2} \div \frac{2x + 3}{x^2 - 4}$

- a) $\frac{(2x-3)^2(2x+3)}{(x+2)^2(x-2)}$ b) $(2x-3)(x+2)$
 c) $(2x+3)(x-2)$ d) $(2x-3)(x-2)$

14. Simplify. $\frac{4}{x+6} - \frac{3}{x^2-36} + \frac{2}{x^2+12x+36}$

- a) $\frac{4x^2 - x - 138}{(x+6)^2(x-6)}$ b) $\frac{4x^2 - 49x + 174}{(x-6)^2(x+6)}$
 c) $\frac{4x^2 - 49x + 138}{(x-6)^2(x+6)}$ d) $\frac{4x^2 - x - 174}{(x+6)^2(x-6)}$

15. Divide and write scientific notation for the result.

$$\frac{19.55 \times 10^{-7}}{8.5 \times 10^{-2}}$$

- a) 2.3×10^{-9} b) $2.3 \times 10^{3.5}$ c) 2.3×10^5 d) 2.3×10^{-5}

ANSWERS

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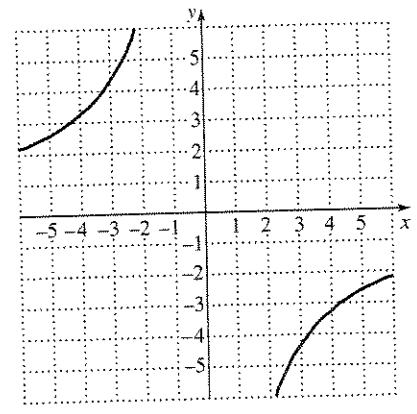
16. Simplify: $\frac{\sqrt[4]{a^5}}{\sqrt[5]{a^3}}$.
~~a) $\sqrt[20]{a^5}$ b) $\sqrt[20]{a^9}$ c) $\sqrt[9]{a^7}$ d) $\sqrt[20]{a^{13}}$~~

17. Find the slope of the line containing the points $(-4, 5)$ and $(7, -3)$.
 a) $-\frac{11}{8}$ b) $-\frac{8}{11}$ c) $\frac{2}{3}$ d) $\frac{8}{3}$

18. Find the common ratio of the geometric sequence $5, 7\frac{1}{2}, 11\frac{1}{4}, \dots$
~~a) $\frac{4}{3}$ b) $\frac{3}{4}$ c) $\frac{3}{2}$ d) $\frac{2}{3}$~~

19. Write the slope-intercept equation for the line which contains the point $(-4, 5)$ and has a slope of $-\frac{3}{4}$.
 a) $y = -\frac{3}{4}x - \frac{1}{4}$ b) $y = -\frac{3}{4}x + 1$
 c) $y = -\frac{3}{4}x + 2$ d) $y = -\frac{3}{4}x - 2$

20. What is the equation corresponding to the following graph?
~~a) $xy = -13$
 b) $\frac{x^2}{4} - \frac{y^2}{16} = 1$
 c) $\frac{y^2}{16} - \frac{x^2}{4} = 1$
 d) $xy = -4$~~



TEST FORM G

21. Keisha runs 4 km/h faster than Lissa runs. Lissa runs 10 km in the same time that Keisha runs 12 km. What is Keisha's speed?

- a) $8\frac{1}{3}$ km/h b) 20 km/h c) 18 km/h d) 24 km/h

22. Subtract. $(8x^3 - 2x^2 - 7x + 8) - (4x^3 - 9x^2 - 2x + 7)$

- a) $4x^3 - 11x^2 - 9x + 1$ b) $4x^3 - 11x^2 - 5x - 15$
 c) $4x^3 + 7x^2 - 5x + 1$ d) $4x^3 + 7x^2 - 9x - 15$

23. Perform the indicated operation. $(4x - 3)^2$

- a) $16x^2 - 24x + 9$ b) $16x^2 + 9$
 c) $16x^2 - 14x + 9$ d) $16x^2 + 24x + 9$

24. Solve: $\sqrt{2x+1} + 2 = 5$

- a) 4 b) 10 c) 24 d) 1

25. Multiply. $-2x^4(3x^3 - 2x^2 + 7x)$

- a) $-6x^{12} + 4x^8 - 14x^4$ b) $-6x^7 + 4x^6 - 14x^5$
 c) $-5x^7 + 4x^6 - 9x^5$ d) $-6x^7 - 4x^6 - 14x^5$

ANSWERS

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TEST FORM G

ANSWERS

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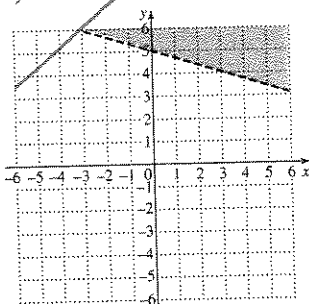
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26. The hypotenuse of a right triangle is 17 cm and the length of a leg is 8 cm. Find the length of the other leg.

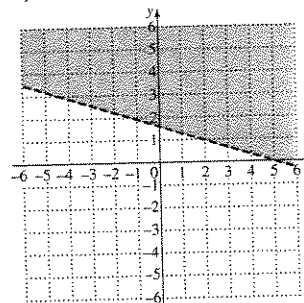
- a) 9 cm b) 18.8 cm c) 15 cm d) 12.5 cm

27. Graph. $y < \frac{1}{3}x + 5$

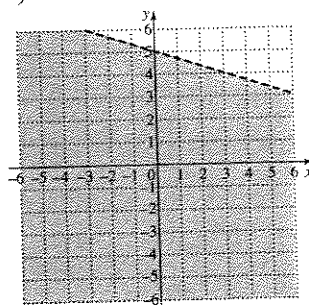
a)



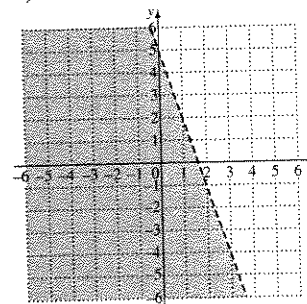
b)



c)



d)



28. If y varies directly as x and $y = 6$ when $x = 18$, find the equation of variation.

- a) $y = 108x$ b) $y = \frac{1}{3}x$ c) $y = 3x$ d) $y = \frac{108}{x}$

29. Given the function $f(x) = 2x^2 - 3x - 10$, find $f(-3)$.

- a) 35 b) -1 c) 17 d) -19

TEST FORM G

30. Multiply and simplify. ~~$(2\sqrt{5} + \sqrt{3})(2\sqrt{5} - \sqrt{3})$~~
- a) ~~$4\sqrt{5} - \sqrt{3}$~~ b) ~~$20 - \sqrt{3}$~~ c) ~~$4\sqrt{5} - 3$~~ d) 17

31. Factor. $36t^2 - 49$
- a) $(6t + 7)(6t + 7)$ b) $(6t - 7)(6t - 7)$
- c) $(18t + 7)(18t - 7)$ d) $(6t + 7)(6t - 7)$

32. Adam and Marc update and improve their fraternity webpage. If Adam does the job alone, it will take him 12 hr. If Marc does the job alone, it will take him 9 hr. If they work together, how long will the job take?
- a) 5.1 hr b) 10.5 hr c) 8 hr d) 6.5 hr

33. Simplify. ~~$\frac{\frac{5}{x} - \frac{3}{2x}}{1 + \frac{3}{4x + \frac{3}{x}}}$~~
- a) ~~$\frac{91}{8x^2}$~~ b) ~~$\frac{14}{13}$~~ c) ~~$\frac{5}{6}$~~ d) ~~$-\frac{14}{11}$~~

34. In 2004, 35% of Tim's graduating university class of 3900 students planned to attend graduate school in September. How many of the students planned to attend graduate school in September?
- a) 111 b) 1365 c) 136 d) 1300

ANSWERS

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TEST FORM G

ANSWERS

35. _____

35. Find the x -intercept of the graph of $-3x + 3y = -21$.

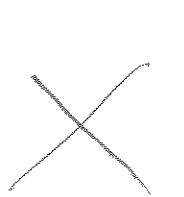
- a) $(0,7)$ b) $(0,-7)$ c) $(7,0)$ d) $(-7,0)$

36. _____

36. The length of a rectangle is 17 m more than the width. The diagonal is 25 m. Find the length of the rectangle.

- a) 8 m b) 24 m c) 20 m d) 7 m

37. _____



37. Find the vertex of the graph of $y = 2x^2 - 4x + 5$.

- a) $(0,5)$ b) $(-1,11)$ c) $(1,3)$ d) $(2,5)$

38. _____

38. Solve the given formula for t . $s = \frac{8w-3}{4t}$

- a) $t = \frac{2w-3}{s}$ b) $t = \frac{s(8w-3)}{4}$ c) $t = \frac{8w-3-s}{4}$ d) $t = \frac{8w-3}{4s}$

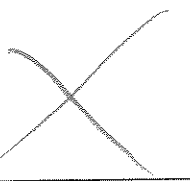
39. _____



39. Solve. $\frac{5x}{x+2} + \frac{3}{x} - 5 = \frac{20}{x(x+2)}$

- a) $\frac{18}{5}$ b) no solution c) $\frac{14}{13}$ d) -2

40. _____



40. Simplify: $\log_2 64$.

- a) 6 b) 3 c) 5 d) 2

Final Exam Form G

1. c 2. a 3. d 4. a 5. b 6. b 7. d 8. b 9. a 10. c 11. b 12. c
13. d 14. d 15. d 16. d 17. b 18. c 19. c 20. a 21. d 22. c
23. a 24. a 25. b 26. c 27. c 28. b 29. c 30. d 31. d 32. a
33. b 34. b 35. c 36. b 37. c 38. d 39. b 40. a 41. b 42. b