MATH 125 – SAMPLE FINAL EXAM

NAME: _____

SHOW ALL WORK NEATLY AND CLEARLY BOX ALL ANSWERS.

FILL IN THE BLANK WITH THE MOST APPROPRIATE ANSWER. NO PARTIAL CREDIT.

(1) Factor : $x^2 + 3x + 2xy + 6y$ _____

(2) $\sqrt{16x^8y^7}$ = _____

(3) If a line rises from left to right, its slope is _____

(4) Simplify: $(5x^2 - 4x + 1) - (2x^2 - 4x + 5)$= _____

(5) What is the slope of the line $2x + 3y = 5$? _____

(6) $\sqrt{324}$ _____ .

(7) $\frac{3x}{x+2} - \frac{2x-2}{x+2}$ =_____

(8) 3^{-2} = _____

(9) Factor: $25x^2 - 16$ _____

(10) Simplify $\frac{2}{3\sqrt{x}}$ = _____

CIRCLE T FOR TRUE, F FOR FALSE.

T F (11) $\frac{x-4}{4-x}$ simplifies to -1.

T F (12) The slope of the line passing through the points (3,2) and (-2,4) is -2/5.

T F (13) $(x - 5)^2$ is the same as $x^2 - 25$.

T F (14) The x intercept the line $3x-5y=6$ is 2.

T F (15) The y intercept of the line $y = 3x + 7$ is 7 .

(16) Find the equation of the line with slope -2 passing through the point (5, 4).

(17) SOLVE: Work carefully, partial credit will be limited.

a) $\frac{2x}{5} - 1 = 7$ b) $2 - (6 + x) = 6x$ c) $1 - 3x \geq 13$

(18) a) $2x^2 - 2x = 12$ b) $2(x+2) = 4x + 3 - (x+2)$ c) $x^2 - 4x + 2 = 0$

(19) Solve: $\sqrt{2x-5} = 3$

(20) Solve the system: $\begin{cases} 3x - 2y = 13 \\ 5x + 4y = 7 \end{cases}$

(21) SET UP AND SOLVE: A man had $1000 to invest. He invested some money in an account earning 5% interest and the rest in an account earning 8% interest. If he earned $71 on the two accounts combined, how much did he invest at each amount?

(22) Graph: $2x - 3y = 2$. Label 2 points. (careful, no partial credit)

(23) Add: $\frac{x+2}{x^2+x-2} + \frac{3}{x^2+2x-3}$

(24) Reduce: $\frac{x^2+x-12}{2x+8}$

(25) Graph: $y = -2x + 3$. Label 2 points. (careful, no partial credit)

(26) A boat leaves a harbor and travels at an average speed of 18 mph to an island. The average speed on the return trip was 12 mph. How far was the island from the harbor if the total trip took 5 hours?

(27) Divide: $\frac{2x^2-7x-4}{6x^2+13x+5} \div \frac{2x^2-32}{3x+5}$

(28) Simplify:

(a) $2x\sqrt{12x} + \sqrt{75x^3}$ _____ (b) $\sqrt{\frac{60x^3}{15x^5}}$ _____

(c) $(5-\sqrt{x})^2$ = _____ (d) $\left(\frac{-12x^2y^5}{6x^3y^2}\right)^4$ = _____

(e) $(2xy^3)^2(5x^4y^{-2})$ = _____ (f) $\frac{x^2y^{-3}z^2}{x^2y^5z}$ = _____

(g) $\sqrt{\frac{50xy^7}{2x^3}}$ = _____ (h) $\sqrt{10x^3y^5}\sqrt{6x^9y^5}$ = _____

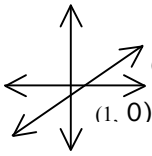
(29) Solve: $\frac{3y}{y^2+5y+6} = \frac{5y}{y^2+2y-3} - \frac{2}{y^2+y-2}$

Answers:

(1) (x+2y)(x+3) (2) $4x^4y^3\sqrt{y}$ (3) positive (4) 3x2-2 (5) -2/3 (6) 18 (7) 1 (8) 1/9 (10) $\frac{2\sqrt{x}}{3x}$ (11) T (12) T (13) F (14) T (15) T (16) y-4=-2(x-5); y= -2x+14 (17) a) 20 b) -4/7 c) $x \le -4, (-\infty, -4]$ (18) a) x = -3, 2 b) x=3 c) $x = 2 \pm \sqrt{2}$ (19) x=7 (20) (3,-2) (21) $300 @ 5%, $700 @ 8% (22) below (23) $\frac{x+6}{(x-1)(x+3)}$ (24) $\frac{x-3}{2}$ (25) below (26) 36 miles (27) $\frac{1}{2x+8}$

(28) $a) 9x\sqrt{3x}$ $b) \frac{2}{x}$ $c) 25-10\sqrt{x}+x$ $d) \frac{16y^{12}}{x^4}$ $e) 20x^6y^4$ $f) \frac{z}{y^8}$ $g) \frac{5y^3\sqrt{y}}{x}$ $h) 2x^6y^5\sqrt{15}$ (29) y=1/2, -6

(22)



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