

# Answers to the second practice final for Math05

Nikos Apostolakis

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1. Evaluate:  $-5 \cdot (2 - 3) - 4 \cdot 3^2 \div 9 \cdot 2$ .

*Answer.*  $-3$

□

2. Let  $f(x) = 3x^3 - 4x^2 - 2x + 5$ . Find both  $f(0)$  and  $f(-2)$ .

*Answer.*  $f(0) = 5$ ,  $f(-2) = -31$

□

3. Solve for  $x$ :  $-3(2x - 1) + 7 = 4(2x - 3) - 4x + 2$ .

*Answer.*  $x = 2$

□

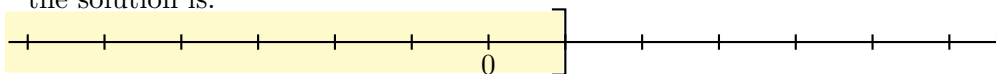
4. Find the slope of the line with equation:  $8x - 3y - 16 = 0$ .

*Answer.* The slope is  $\frac{8}{3}$ .

□

5. Solve  $-2x + 5 \geq 3$ . Graph the solution set *and* represent it in interval notation.

*Answer.* The solution is  $1 \geq x$ . In interval notation the solution set is  $(-\infty, 1]$ . The graph of the solution is:



□

6. Solve for  $x$ :  $|3x - 4| = 5$ .

*Answer.*  $x = 3$  or  $x = \frac{-1}{3}$

□

7. Sketch the graph of  $3x - 4y = 12$ . Find the  $x$  and  $y$ -intercepts.

*Answer.* The intercepts are  $(0, -3)$  and  $(4, 0)$ .

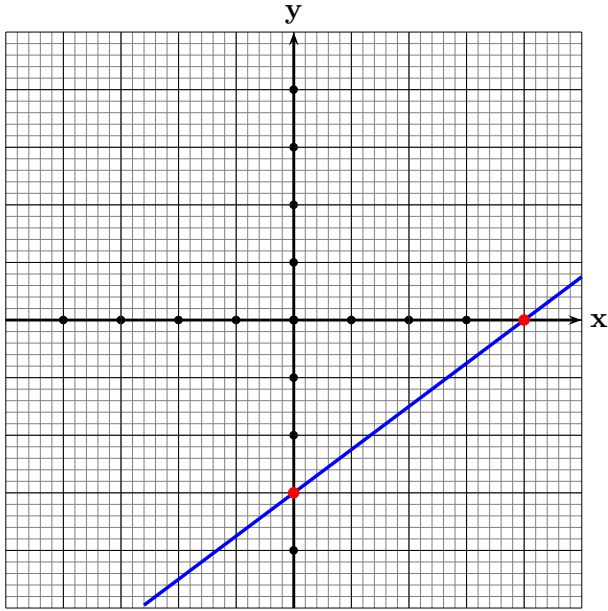
□

8. Find the equation of the line that passes through the points  $(1, -3)$  and  $(-1, -5)$ .

*Answer.*  $y = x - 4$

□

9. Solve for  $x$  and  $y$ : 
$$\begin{cases} 2x - 3y = 18 \\ 4x + 2y = 4 \end{cases}$$



*Answer.*  $x = 3, y = -4$

10. Multiply and simplify:  $(2x - 3)(4x^2 - 12x + 9)$ .

*Answer.*  $8x^3 - 36x^2 + 54x - 27$ .

11. Simplify:  $\left(\frac{2x^3y^4}{z^3w^5}\right)^4 \frac{w^3y^3z^2}{x^2z^3}$

*Answer.*  $\frac{16x^{10}y^{19}}{w^{17}z^{13}}$

12. Simplify:  $\frac{9x^5 - 3x^4 - 27x^3 - 6x^2}{3x^2}$ .

*Answer.*  $3x^3 - x^2 - 9x - 2$ .

13. Factor:  $6x^2 + 7x - 20$ .

*Answer.*  $(3x - 4)(2x + 5)$ .

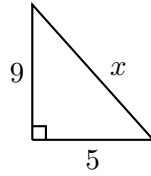
14. Solve for  $z$ :  $z^2 + 3z - 40 = 0$ .

*Answer.*  $z = -5$  or  $z = 8$ .

15. Factor completely:  $x^3 + 2x^2 - 9x - 18$ .

*Answer.*  $(x + 2)(x + 3)(x - 3)$ .

16. Find the length  $x$  and simplify your answer.



*Answer.*  $x = \sqrt{106}$ . □

17. At 3 pm two buses leave a town heading in the same direction. One bus travels 70 mph and the other 60 mph, what time is it when they are 50 miles apart?

*Answer.* The time will be 8 pm. □

18. Find the midpoint of the segment with endpoints  $(2, 3)$  and  $(-5, 6)$ .

*Answer.*  $\left(-\frac{3}{2}, \frac{9}{2}\right)$  □

19. If 30 pounds of coffee cost \$90 how much do 11 pounds cost?

*Answer.* They cost \$33. □

20. Factor completely:  $x^2y^3z - x^3y^3 - z^2 + xz$ .

*Answer.*  $(x^2y^3 - z)(z - x)$ . □

21. Simplify:  $\sqrt{48x^{17}y^{20}}$ .

*Answer.*  $4x^8y^{10}\sqrt{3x}$ . □