

Answers to the third Practice Final

December 16, 2008

1. Evaluate: $-7 \cdot (-5 + 2) - 4^2 \div 2 \cdot 3$

Answer. -3 .

□

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

Answer. $f(0) = -2$, $f(-3) = -35$.

□

3. Solve for x : $-2(4x - 5) + 2x = 3(2x + 6) - x - 2$

Answer. $x = -\frac{6}{11}$

□

4. Solve for y : $-6x + 5y = -30$

Answer. $y = \frac{6}{5}x - 6$

□

5. Solve $-6x - 7 < 13$ and

(a) graph the solution set

(b) express the solution set in interval notation.

Answer. The given inequality is equivalent to $x > -\frac{10}{3}$. In interval notation the solution is: $\left(-\frac{10}{3}, \infty\right)$. The graph of the solution set is:



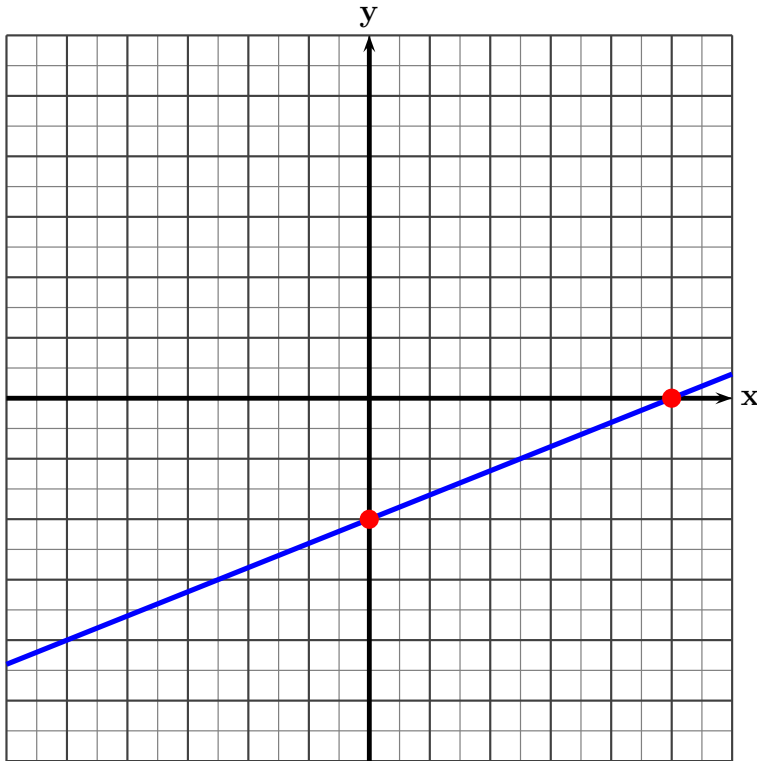
□

6. Solve for x : $|3x - 7| = 13$

Answer. $x = -2$ or $x = \frac{20}{3}$

□

7. Sketch the graph of $2x - 5y = 10$. Show the x and y intercepts.



$$\begin{array}{r|l} x & y \\ \hline 0 & -2 \\ \hline 5 & 0 \end{array}$$

8. Find an equation for the line that passes through the points $(-2, 3)$ and $(2, 9)$.

Answer. $y = \frac{3x}{2} + 6$

9. Solve for x and y :
$$\begin{cases} 4x - 3y = -24 \\ 3x + 6y = 15 \end{cases}$$

Answer. $(-3, 4)$

10. Multiply and simplify: $(3x - 2)(9x^2 + 6x + 4)$

Answer. $27x^3 - 8$

11. Simplify: $\left(\frac{2x^2y^3}{zy^2}\right)^5 (x^3yz^2)^3$

Answer. $32x^{19}y^8z$

12. Simplify: $\frac{16x^4 - 32x^3 + 4x^2}{-4x^2}$

Answer. $-4x^2 + 8x - 1$

13. Divide $6x^2 - 7x - 20$ by $2x - 5$.

Answer. $3x + 4$

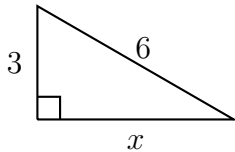
14. Solve for x : $3x^2 + 11x - 4 = 0$

Answer. $x = \frac{1}{3}$ or $x = -4$

15. Factor completely: $3x^2y^3 - 12x^2y$

Answer. $3x^2y(y + 2)(y - 2)$

16. Find the missing side length x and simplify your answer:



Answer. $x = 3\sqrt{3}$

17. At 1 PM two buses leave a town heading in opposite directions. If one bus is traveling at 54 mph and the other at 63 mph, what time is it when they are 468 miles apart?

Answer. When the two buses are 468 miles apart the time is 5 PM.

18. If a car gets 27 miles per gallon of gas, how many gallons of gas are needed to travel 42 miles?

Answer. $\frac{14}{9}$ or 1.56 gallons.

19. Factor: $10x^3 - 15yx^2 + 14xy - 21y^2$

Answer. $(7y + 5x^2)(2x - 3y)$

20. Simplify: $\sqrt{75x^{20}y^5}$

Answer. $5x^{10}y^2\sqrt{3y}$