

NAME : _____

Math 98 - Final Exam - Part 1

Fall 2018 - Version A

All problems are worth 5 points. For full credit, **show all steps**, using correct notation. In case of word problems, you must set up and solve an equation or a system of equations; trial and error will get you a maximum of 1 point.

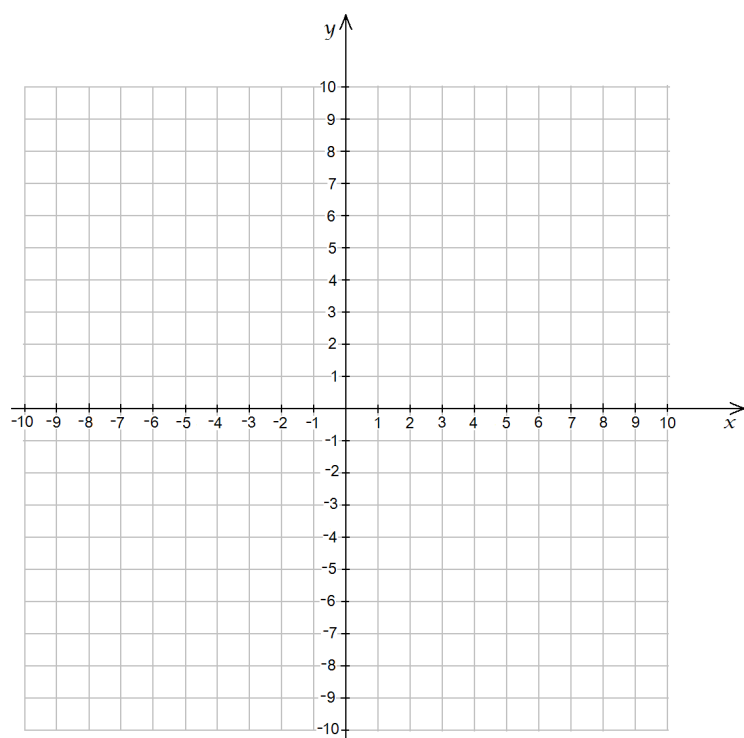
1. 35% of a number is 42. Find this number.

2. Simplify the given expression. $(y + 3)^2 - (2y - 1)^2$

3. Solve the given inequality. Graph the solution set on a number line.

$$3(x - 4) - 2(5x - 1) \geq -5(x + 6)$$

4. Graph the straight line $y = -\frac{2}{3}x + 3$. Show computation or otherwise explain your method of graphing.



5. Solve the given system of linear equations.
$$\begin{cases} 3x - 2y = -20 \\ -x + 3y = 23 \end{cases}$$

6. Completely factor the given expression.

$$6x^2 - 7x - 3$$

7. Simplify the given expression. Assume that all variables represent positive numbers. Present your answer using only positive integer exponents.

$$\frac{x^2}{(x^{-7}x^4)^{-5}}$$

8. Solve the given equation.

$$x^3 = -5x^2$$

9. We cut a 34 yard long rope into three pieces. The longest piece is three times as long as the shortest piece, and the middle piece is four yard longer than the shortest piece. How long are the pieces?

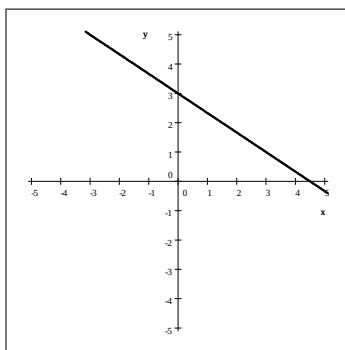
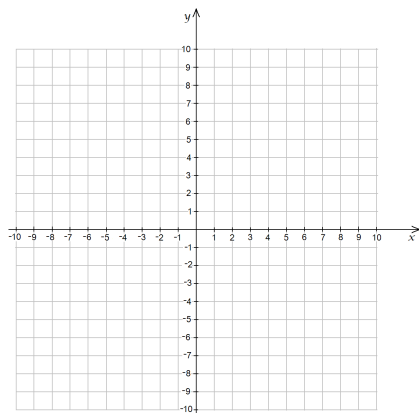
10. There is an animal farm where chickens and cows live. All together, there are 43 heads and 154 legs. How many chickens and how many cows are there on the farm?

Answers

- 35% of a number is 42. Find this number. 120
- Simplify the given expression. $(y + 3)^2 - (2y - 1)^2$ $-3y^2 + 10y + 8$
- Solve the given inequality. Graph the solution set on a number line. $(-\infty, 10]$

$$3(x - 4) - 2(5x - 1) \geq -5(x + 6)$$

- Graph the straight line $y = -\frac{2}{3}x + 3$. Show computation or otherwise explain your method of graphing.



- Solve the given system of linear equations. $\begin{cases} 3x - 2y = -20 \\ -x + 3y = 23 \end{cases}$ $(-2, 7)$
- Completely factor the given expression. $6x^2 - 7x - 3 = (2x - 3)(3x + 1)$
- Simplify the given expression. Assume that all variables represent positive numbers. Present your answer using only positive integer exponents. $\frac{x^2}{(x^{-7}x^4)^{-5}} = \frac{1}{x^{13}}$
- Solve the given equation. $x^3 = -5x^2$ $0, -5$
- We cut a 34 yard long rope into three pieces. The longest piece is three times as long as the shortest piece, and the middle piece is four yard longer than the shortest piece. How long are the pieces? 6 yard, 10 yard, 18 yard
- There is an animal farm where chickens and cows live. All together, there are 43 heads and 154 legs. How many chickens and how many cows are there on the farm?

9 chickens and 34 cows

Last revised: July 2, 2018