Algebra I Homework #21

1) Simplify: $\dfrac{\dfrac{4}{x-3}-\dfrac{3}{x-6}}{\dfrac{7}{x-6}+\dfrac{6}{x-3}}$

2) Factor: $27ya-3a-45y^2+5y$

3) Solve: $\dfrac{34}{x^2+13x-30}=\dfrac{2}{x-2}-\dfrac{1}{x+15}$

4) Simplify: $5x^2y^3\sqrt[5]{729x^6y^{10}}$

5) Simplify: $\dfrac{7}{x^2-x-12}-\dfrac{6}{x^2-9}$

6) Solve: $12xy-5km=7kx$ for the letter k

7) Suppose that the flight path of a rocket (in miles) is given by the equation $y=-x^2+10x-21$. Determine how many miles from the control tower the rocket was launched, how many miles away from the control tower it landed, how far from the control tower was the rocket at its maximum height, and how high the rocket went. (include a graph with your work!)

8) Solve: $7m=\dfrac{2}{5}y(3x-a)$ for the letter x

9) Suppose that the flight path of a rocket (in miles) is given by the equation $y=-x^2+16x-55$. Determine how many miles from the control tower the rocket was launched, how many miles away from the control tower it landed, how far from the control tower was the rocket at its maximum height, and how high the rocket went. (include a graph with your work!)

10) Solve: $8mx=3ay+11am$ for the letter m

11) Suppose that the flight path of a rocket (in miles) is given by the equation $y=-x^2+12x-27$. Determine how many miles from the control tower the rocket was launched, how many miles away from the control tower it landed, how far from the control tower was the rocket at its maximum height, and how high the rocket went. (include a graph with your work!)

12) Solve: $A=\frac{1}{2}h(b_1+b_2)$ for the letter b_2

13) Suppose that the flight path of a rocket (in miles) is given by the equation $y=-x^2+16x-48$. Determine how many miles from the control tower the rocket was launched, how many miles away from the control tower it landed, how far from the control tower was the rocket at its maximum height, and how high the rocket went. (include a graph with your work!)

14) Solve: $\frac{4}{3x}=\frac{5}{4y}-\frac{1}{6m}$ for the letter y

15) Suppose that the flight path of a rocket (in miles) is given by the equation $y=-x^2+22x-96$. Determine how many miles from the control tower the rocket was launched, how many miles away from the control tower it landed, how far from the control tower was the rocket at its maximum height, and how high the rocket went. (include a graph with your work!)

16) Solve: $\frac{5}{8}y(a-3x)=2m$ for the letter x

17) Suppose that the flight path of a rocket (in miles) is given by the equation $y=-x^2+24x-140$. Determine how many miles from the control tower the rocket was launched, how many miles away from the control tower it landed, how far from the control tower was the rocket at its maximum height, and how high the rocket went. (include a graph with your work!)

18) Solve: $\frac{1}{x}+\frac{1}{y}=\frac{1}{a}$ for the letter a

19) Suppose that the flight path of a rocket (in miles) is given by the equation $y=-x^2+10x-16$. Determine how many miles from the control tower the rocket was launched, how many miles away from the control tower it landed, how far from the control tower was the rocket at its maximum height, and how high the rocket went. (include a graph with your work!)

20) Solve: $7ya+8xa=5mx$ for the letter y