Algebra II – Worksheet 10B
Combined Variation

1. y varies jointly as x and z. If y = 5 when x = 3 and z = 4, find y when x = 6 and z = 8.

2. y varies jointly as x and z. If y = 12 when x = 4 and z = 3, find y when x = 9 and z = 8.

3. y varies directly as x and inversely as z. If y = 5 when x = 3 and z = 4, find y when x = 6   and z = 8.

4. y varies directly as x^2 and inversely as z. If y = 12 when x = 2 and z = 7, find y when x = 3 and z = 9.

5. A varies jointly as b and h. If A = 16 when b = 2 and h = 8, find A when b = 8 and h = 16.

6. y varies jointly as x and $\sqrt{z}$. If y = 6 when x = 3 and z = 9, find y when x = 4 and z = 36.

7. y varies jointly as $\sqrt[3]{x}$ and z^2. If y = 3 when x = 8 and z = 4, find y when x = 27 and z = 6.

8. y varies directly as $\sqrt{x}$ and inversely as z. If y = 10 when x = 9 and z = 12, find y when x = 16 and z = 10.

9. x varies jointly as y^3 and $\sqrt{z}$. If x = 7 when y = 2 and z = 4, find x when y = 3 and z = 9.

10. x varies directly as y^3 and inversely as $\sqrt{z}$. If x = 7 when y = 2 and z = 4, find x when y = 3 and z = 9.

11. The number of girls varied directly as the number of boys and inversely as the number of teachers. When there were 50 girls, there were 20 teachers and 10 boys. How many boys were there when there were 10 girls and 100 teachers?

12. Strawberries varied jointly as plums and tomatoes. If 500 strawberries went with 4 plums and 25 tomatoes, how many plums would go with 40 strawberries and 2 tomatoes?

13. Cheers varied jointly as the number of fans and the square of the jubilation factor. When there were 100 fans and jubilation factor was 4 there were 1000 cheers. How many cheers were there when there were only 10 fans whose jubilation factor was 20?

14. Blues varied directly as greens and inversely as whites squared. If there were 3 greens when there were 4 blues and 2 whites, how many greens were required for 2 blues and 4 whites?

15. The number of rabbits varied directly as the number of squirrels and inversely as the number of raccoons. When there were 10 rabbits and 40 squirrels there were only 2 raccoons. How many raccoons went with 5 rabbits and 20 squirrels?

16. The work accomplished varied jointly as the number of people and their average productivity factor. If 100 people with an average productivity factor of 20 could produce 8000 units on one shift how many people whose factor was only 2 would be required to produce 16,000 units?

17. Reds varied directly as yellows and inversely as greens squared. If 100 reds and 40 yellows went with 10 greens, how may reds went with 20 yellows and only 5 greens?

18. Horses varied directly as goats and inversely as pigs squared. When the barnyard contained 5 horses there were 4 pigs and only 2 goats. How many goats went with 6 pigs and 10 horses?

19. The number of potatoes varied jointly as the number of mules and the number of farmers squared. If 5 mules and 5 farmers went with 750 potatoes, how many potatoes went with 10 mules and 10 farmers?

20. The number of students varied jointly as the number of teachers and the number of administrators squared. 1000 students were present when there were 5 teachers and 2 administrators. How many students were there with 8 teachers and 1 administrator?