

## Algebra II Unit 11 Study Guide

**Simplify.**

1.  $-74 + -37$

2.  $82 - 49$

3.  $(-45)(-61)$

4.  $-126 \div (-7)$

5.  $\frac{9m^4n^{-3}p^0}{m^7n^4p^9} \cdot \frac{m^3np^7}{27m^{-1}p^{-2}}$

**Evaluate.**

6.  $2 + \sqrt{4x - 8} = 14$

7. Solve the system of equations.

$$\begin{cases} 6x + 2y = 20 \\ -3x - 8y = 4 \end{cases}$$

8. Factor.  $f(x) = -3x^2 + 8x - 4$ 9. Determine the x-intercepts.  $f(x) = -7x^2 + 2x - 4$ 10. Determine the product.  $(3m + 2)(-4m^2 + 7)$ 

11. Add.

$$\frac{x + 1}{x - 2} + \frac{3x + 8}{x^2 + 5x - 14}$$

12. Determine  $m(n(-2))$  if  $m(x) = 7x + 8$ , and  $n(x) = \frac{x^2}{4}$ .13. Determine the value of  $b$  for an ellipse with center  $(7, -3)$ , vertex  $(7, 2)$  and focus  $(7, 0)$ .

14. 9 people are being picked at random out of 15 to be interviewed. How many ways can they be picked?

15. 8 people are competing in a race. How many ways can they be chosen for 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> place?

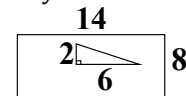
16. How many ways can 5 out of 7 shirts be bought?

17. How many ways can 3 people be assigned different tasks if there are 8 available people?

18. Determine the probability that an object chosen at random from a box with 2 teddy bears, 3 dolls, and 7 water bottles will be a water bottle. Write your answer as a fraction.

19. Determine the probability that an object chosen at random from a bag containing 6 striped hats, 3 red hats, 4 blue ties, and one striped tie will be striped or a hat. Write your answer as a fraction.

20. What is the probability that a point chosen at random will be in the rectangle but not in the triangle? Write your answer as a fraction.



21. A clock has 12 numbers on its face. What is the probability that a number chosen at random off of a clock's face will be a factor of 8? Write your answer as a fraction.

22. A number cube is rolled 4 times. What is the probability that it will roll a 5, a 2, an even, and a factor of 3? Write your answer as a percent to one decimal place.

23. There are 8 shirts in a drawer. 2 are striped, 3 are solid colors, and 3 are plaid. If 3 shirts are chosen at random, without replacement, what is the probability of choosing a solid, a plaid and then another plaid? Write your answer as a percent to one decimal place.

24. There are 12 popsicle sticks, each labeled with a number (1-12). If 2 are chosen at random, what is the probability that the first will be an even and the second, after the first is put back, will be the same number as the first time? Write your answer as a percent to one decimal place.

25. Determine the standard deviation of the data.  $\{3, 4, 7, -5, 1\}$