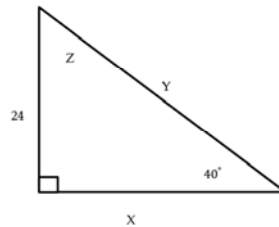


Get out PINK final exam review #1 from last week

Applied Algebra 2  
Final Exam Review #1

Name: \_\_\_\_\_  
Period: \_\_\_\_\_

For questions 1-3, please reference the following triangle.



1. Find the length of side X.
  2. Find the length of side Y.
  3. Find the measurement of angle Z.
4. A safety regulation states that the maximum angle of elevation for a rescue ladder is 72°. A fire department's longest ladder is 110 feet. What is the maximum safe rescue height?

5. A man climbs 213 feet up the side of a pyramid to get away from his wife, who is standing at the foot of the pyramid where the man started to climb. The angle of depression to where his wife is standing is 52.6°. How high off the ground is the man?

6. The length of a shadow of a tree is 125 feet when the angle of elevation on the sun is 33°. Approximate the height of the tree.

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PROBABILITY

7. A hockey team wants to elect a captain and a co-captain. If there are 14 people on the hockey team how many different sets of captain and co-captain are possible?

$14 \cdot 13 = 182$  *Permutation*

8. Mrs. Boots needs 5 students from her class of 34 to help her move into her new classroom. How many different options are possible?

$\frac{34 \cdot 33 \cdot 32 \cdot 31 \cdot 30}{5!} = 278,256$  *Combination*

9. There are 20 members in a club. Five people are selected to go to the state conference. In how many ways can the five members be selected?

$\frac{20 \cdot 19 \cdot 18 \cdot 17 \cdot 16}{5!} = 15,504$  *Combination*

10. Get rich A survey of 4826 randomly selected young adults (aged 19 to 25) asked, "What do you think are the chances you will have much more than a middle-class income at age 30?" The two-way table shows the responses.

Opinion	Gender		Total
	Female	Male	
Almost no chance	96	98	194
Some chance but probably not	426	286	712
A 50-50 chance	696	720	1416
A good chance	663	758	1421
Almost certain	486	597	1083
<b>Total</b>	<b>2376</b>	<b>2459</b>	<b>4826</b>

- a. If a person is randomly selected, what is the probability that they have a 50-50 chance?
- b. If a person is randomly selected, what is the probability that they are almost certain?
- c. If a person is randomly selected, what is the probability that they have some chance but

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11. A bag contains 8 blue M&M's, 4 red M&M's, 5 yellow M&M's, 3 orange M&M's. Find the following probabilities. Total = 20

P (red, red) without replacement P (blue, blue) without replacement

$$\frac{4}{20} \cdot \frac{3}{19} = \frac{12}{380} = .031 \quad \frac{8}{20} \cdot \frac{7}{19} = \frac{56}{380} = .147$$

3.1% 14.7%

P (red, orange) without replacement P (blue, yellow) with replacement

$$\frac{4}{20} \cdot \frac{3}{19} = \frac{12}{380} = .031 \quad \frac{8}{20} \cdot \frac{5}{20} = \frac{40}{400} = \frac{1}{10} = .1$$

3.1% 10%

P (orange, blue) with replacement P (red, blue) with replacement

$$\frac{3}{20} \cdot \frac{8}{20} = \frac{24}{400} = .06 \quad \frac{4}{20} \cdot \frac{8}{20} = \frac{32}{400} = .08$$

6% 8% p. 81