

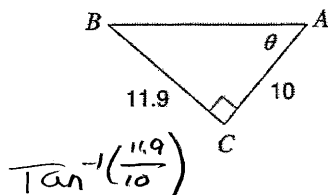
Chapter 4 Review

Name: Key

Answer each question completely. If you need to round, round to the nearest tenths.

1. Solve for the missing piece of the triangle.

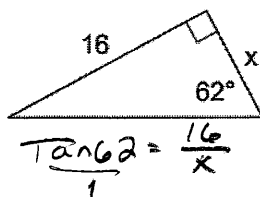
a.



$$\tan^{-1}\left(\frac{11.9}{10}\right)$$

$$\theta = 50^\circ$$

b.



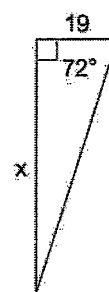
$$\tan 62 = \frac{16}{x}$$

$$x \tan 62 = \frac{16}{\tan 62}$$

$$x = 8.5$$

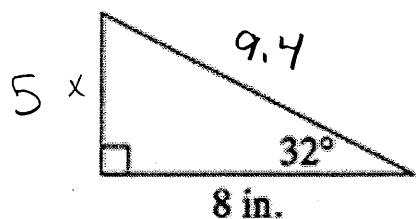
c. $\tan 72 = \frac{x}{19}$

$$x = 19 \tan 72$$



$$x = 58.5$$

2. Find the area and the perimeter of the triangle.



$$\tan 32 = \frac{x}{8}$$

$$x = 8 \tan 32$$

$$5^2 + 8^2 = c^2$$

$$\sqrt{c^2} = \sqrt{89}$$

$$c = 9.4$$

$$\tan^{-1}\left(\frac{5}{8}\right)$$

$$\angle B = 61.9^\circ$$

$$\tan^{-1}\left(\frac{8}{5}\right)$$

$$\angle C = 28.1^\circ$$

$$\tan(B) = \frac{5}{8}$$

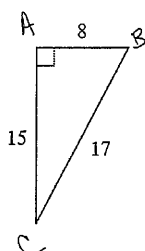
$$\tan(C) = \frac{8}{5}$$

$$A = \frac{1}{2}(8)(5)$$

Area: 20 in²

Perimeter: 22.4 in

3.



$$\tan(B) = \frac{15}{8}$$

$$\tan(C) = \frac{8}{15}$$

$$\tan^{-1}\left(\frac{15}{8}\right)$$

$$\angle B = 61.9^\circ$$

$$\tan^{-1}\left(\frac{8}{15}\right)$$

$$\angle C = 28.1^\circ$$

4. Write an equation of a line in slope-intercept form that satisfies the following situations.

a. $m = \frac{5}{2}$, through $(9, -6)$

$$-6 = \frac{5}{2}(9) + b$$

$$-6 = 22.5 + b$$

$$-22.5 - 22.5$$

$$b = -28.5$$

$$y = \frac{5}{2}x - 28.5$$

b. Through $(-5, 6)$ and $(-8, 2)$

$$\frac{2-6}{-8-(-5)} = \frac{-4}{-3} = \frac{4}{3}$$

$$2 = \frac{4}{3}(-8) + b$$

$$2 = -\frac{32}{3} + b$$

$$+ \frac{32}{3} + \frac{32}{3}$$

$$b = \frac{38}{3}$$

$$y = \frac{4}{3}x + \frac{38}{3}$$

c. Through $(-4, 9)$, \parallel to $y = -\frac{5}{6}x + 25$

$$m = -\frac{5}{6}$$

$$9 = -\frac{5}{6}(-4) + b$$

$$9 = \frac{10}{3} + b$$

$$-\frac{10}{3} - \frac{10}{3}$$

$$b = \frac{17}{3}$$

$$y = -\frac{5}{6}x + \frac{17}{3}$$

d. Through $(-5, 4)$, \perp to $y = 3x - 8$

$$m = \frac{1}{3}$$

$$4 = \frac{1}{3}(-5) + b$$

$$4 = -\frac{5}{3} + b$$

$$+ \frac{5}{3} + \frac{5}{3}$$

$$b = \frac{17}{3}$$

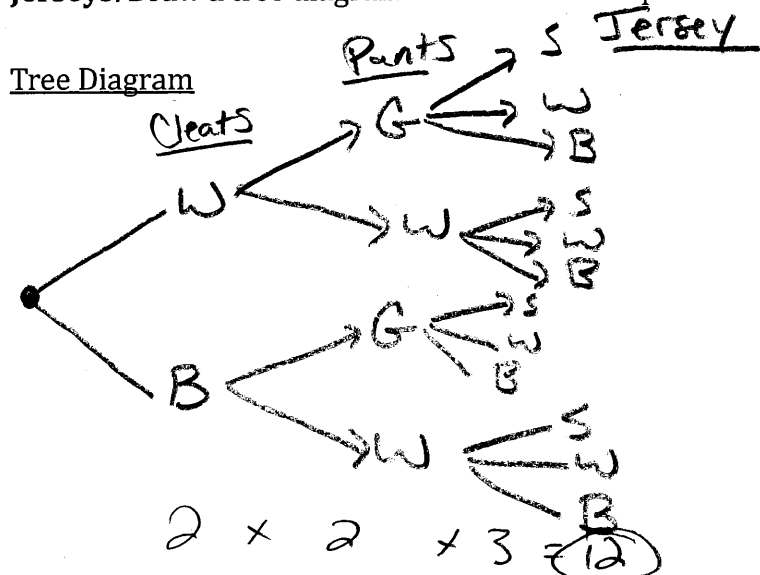
$$y = \frac{1}{3}x + \frac{17}{3}$$

5. When doing probability, the word "OR" generally means to ADD.

$P(A \text{ or } B) = \frac{P(A) + P(B)}{}$ Unless there is overlap, then you have to Subtract Overlap.

The word "AND" generally means to Multiply. $P(A \text{ and } B) = \frac{P(A) \cdot P(B)}{}$

6. Ohio State is preparing for their Rose bowl game and have some options for their gear. They can choose between White(W) or Black(B) **cleats**, Grey (G) or White (W) **pants**, and Scarlett (S), White (W) or Black(B) **Jerseys**. Draw a tree diagram and list all of the possible outcomes.



Outcomes

WGS
WGW
WGB

BGS
BGW
BGB

WWS
WGW
WGB

BWS
BGW
BGB

12

7. You are rolling a 6 sided die and spinning a spinner that has 5 regions to land on (A,B,C,D,E)

a. $P(\text{rolling a 3 and D})$

$$\frac{1}{6} \cdot \frac{1}{5} = \frac{1}{30}$$

b. $P(\text{Even and Vowel})$

$$\frac{1}{2} \cdot \frac{2}{5} = \frac{2}{10} = \frac{1}{5}$$

c. $P(\text{less than 4 and A or B})$

$$\frac{1}{2} \cdot \frac{2}{5} = \frac{2}{10} = \frac{1}{5}$$

8. 15. A bag contains 2 red, 6 blue, 7 yellow, and 3 orange marbles. Once a marble is selected, it is not replaced. Find each probability if you select 1 at a time.

a. $P(\text{orange, orange})$

$$\frac{3}{18} \cdot \frac{2}{17} = \frac{1}{51}$$

b. $P(\text{Blue, Red})$

$$\frac{6}{18} \cdot \frac{2}{17} = \frac{3}{151}$$

c. $P(\text{yellow, yellow, orange})$

$$\frac{7}{18} \cdot \frac{6}{17} \cdot \frac{3}{16} = \frac{2}{272}$$

d. $P(\text{Blue, Yellow, Red})$

$$\frac{6}{18} \cdot \frac{7}{17} \cdot \frac{2}{16} = \frac{7}{408}$$

e. $P(\text{Blue, Blue, not yellow})$

$$\frac{6}{18} \cdot \frac{5}{17} \cdot \frac{9}{16} = \frac{15}{272}$$

f. $P(\text{yellow, orange, not red})$

$$\frac{7}{18} \cdot \frac{3}{17} \cdot \frac{14}{16} = \frac{49}{816}$$

Simplified

One card is drawn from a standard deck of 52 cards. Find each probability.

- Red FC

1. P(Jack or Ten)

$$\frac{4}{52} + \frac{4}{52} = \frac{8}{52} \quad \left(\frac{2}{13}\right)$$

d. P(Red or Ace) - RA

$$\frac{26}{52} + \frac{4}{52} - \frac{1}{52} = \frac{29}{52}$$

b. P(red or Face Card)

$$\frac{26}{52} + \frac{12}{52} - \frac{6}{52} = \frac{32}{52} \quad \left(\frac{8}{13}\right)$$

c. P(Queen or Club) - Q of Clubs

$$\frac{4}{52} + \frac{13}{52} - \frac{1}{52} = \frac{16}{52} \quad \left(\frac{4}{13}\right)$$

e. P(Face Card or Spade) Spade FC

$$\frac{12}{52} + \frac{13}{52} - \frac{3}{52} = \frac{22}{52} \quad \left(\frac{11}{26}\right)$$

f. P(Diamond or Black)

$$\frac{13}{52} + \frac{26}{52} = \frac{39}{52} \quad \left(\frac{3}{4}\right)$$

10. What is the probability that the mouse ends in box A, B and C?

$$P(A) \quad \frac{3}{18} = \frac{1}{6}$$

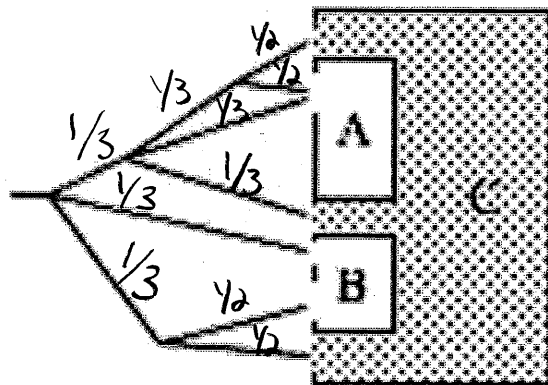
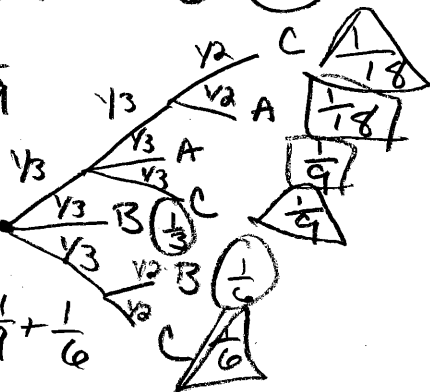
$$P(B) \quad \frac{3}{6} = \frac{1}{2}$$

$$P(C) \quad \frac{1}{3}$$

$$A: \frac{1}{18} + \frac{1}{9}$$

$$B: \frac{1}{3} + \frac{1}{6}$$

$$C: \frac{1}{18} + \frac{1}{9} + \frac{1}{6} = \frac{1}{3}$$



11. The triangles are similar, what is the value of x and y?

$$x = 7.2$$

$$y = 8.5$$

★ Every # Needs to be the Length of a Δ !

$$\frac{B}{5} \quad \frac{17}{12} = \frac{y}{6}$$

$$\frac{102}{12} = \frac{12y}{12}$$

$$y = 8.5$$

$$\frac{x+3}{x} = \frac{17}{12}$$

$$17x = 12(x+3)$$

$$17x = 12x + 36$$

$$\frac{5x}{5} = \frac{36}{5}$$

$$x = 7.2$$

