

Keystone Review 2014 – Extensions Packet

Simplifying Square Roots

Ex A) Simplify: $8\sqrt{160}$

Ex B) Which value of x makes the expression $\sqrt{26x}$ equivalent to $4\sqrt{26}$?

- a) 2 b) 4 c) 8 d) 16

Ex C) Which value of x would simplify the expression $\sqrt{30x}$?

- a) 7 b) 10 c) 11 d) 23

Practice:

1.) Simplify: $\sqrt{726}$

- A.) $6\sqrt{11}$ B.) $66\sqrt{11}$ C.) $121\sqrt{6}$ D.) $11\sqrt{6}$

2.) Simplify: $6\sqrt{320}$

- A.) $8\sqrt{5}$ B.) $14\sqrt{5}$ C.) $5\sqrt{8}$ D.) $48\sqrt{5}$

3.) $5\sqrt{67x}$

Which value of x makes the expression above equivalent to $50\sqrt{67}$?

- A.) 10 B.) 100 C.) 2,500 D.) 500

4.) The expression $\sqrt{205x}$ could be further simplified for which value of x ?

- A.) 35 B.) 134 C.) 7 D.) 34

5.) The expression $\sqrt{22x}$ could be further simplified for which value of x ?

- A.) 3 B.) 5 C.) 11 D.) 15

Comparing and Ordering Real Numbers

Ex A) Order the following from greatest to least: 23% , $\frac{11}{24}$, 0.3 , $\frac{1}{3}$

Ex B) Complete the comparison: $5.8\% \boxed{?} \frac{1}{10}$

Practice

1.) Order the following from greatest to least: $\frac{7}{15}$, $\frac{17}{22}$, $\frac{22}{37}$, $\frac{5}{17}$

- A) $\frac{5}{17}, \frac{7}{15}, \frac{22}{37}, \frac{17}{22}$ B) $\frac{17}{22}, \frac{22}{37}, \frac{7}{15}, \frac{5}{17}$ C) $\frac{22}{37}, \frac{17}{22}, \frac{7}{15}, \frac{5}{17}$ D) $\frac{17}{22}, \frac{22}{37}, \frac{5}{17}, \frac{7}{15}$

2.) Order the following from greatest to least: $\frac{2}{5}$, 27% , $\frac{4}{11}$, 0.48

- A) $0.48, \frac{2}{5}, \frac{4}{11}, 27\%$ B) $0.48, \frac{4}{11}, \frac{2}{5}, 27\%$
C) $27\%, \frac{4}{11}, \frac{2}{5}, 0.48$ D) $\frac{2}{5}, \frac{4}{11}, 27\%, 0.48$

3.) Which list of numbers is in order from greatest to least?

- A) $\sqrt{29}, 5, \pi, \sqrt{2}$ B) $5, \sqrt{29}, \pi, \sqrt{2}$ C) $\sqrt{29}, 5, \sqrt{2}, \pi$ D) $\sqrt{2}, \pi, 5, \sqrt{29}$

4.) Complete the comparison: $\frac{14}{15} \boxed{?} 99.3\%$

- A) $<$ B) $>$ C) $=$

5.) Complete the comparison: $-0.22 \boxed{?} -\frac{6}{19}$

- A) $=$ B) $<$ C) $>$

Evaluating Expressions

When evaluating expressions you must remember to follow **PEMDAS**

Ex A) $-5 - 4(3 + 2)^2$

Ex B) $|3 - 7| - (11 - 4^2)$

Practice:

Evaluate each expression.

1.) $(-4)^2 - (-6)^2$

2.) $|4 - 2^3| - 3 \cdot 2$

3.) $[4 - (-3)]^2$

4.) $[9 - |-8|] + 9 \div (-1)$

5.) $\frac{-18 \div 3 + 2}{16 \div 4}$

6.) $-(36 \div 2)^2 - 48 \div (-4)$

Probability

Probability of an Event: $\frac{\# \text{ of favorable outcomes}}{\# \text{ of total outcomes}}$

- Probability is always a number between 0 and 1

Compound Events – consist of two or more events

Ex: flipping a coin multiple times, picking multiple cards out of a deck, rolling a die twice

Notation: $P(A \text{ and } B)$

$$P(A \text{ and } B) = P(A) \cdot P(B) \rightarrow \text{if its AND then you MULTIPLY}$$

$$P(A \text{ or } B) = P(A) + P(B) \rightarrow \text{if its OR then you ADD}$$

*If something falls in both A and B only count it once.

Examples:

Ex 1.) A bag contains 2 yellow, 3 green, 4 blue and 3 red marbles.

a) A marble is drawn at random. Find the probability of drawing a green marble.

b) A marbles is drawn from the bag, its color is noted, and then the marbles is placed back into the bag. The bag is then shaken and a second marbles is drawn and its color is noted. What is the probability that a red then a blue is selected?

c) A marbles is drawn from the bag then discarded. The bag is then shaken and a second marbles is drawn. What is the probability that a red then a blue is selected?

Ex 2.) There are 20 cards numbered 1-20. One card is selected from the pile. Find the following probabilities:

a) $P(\text{Even or } 5)$

b) $P(\text{Even or less than } 5)$

Practice:

1.) Suppose a number cube (dice) is rolled twice. What is the probability that an odd number will occur both times?

2.) A jar contains 3 red marbles, 2 white marbles, and 1 green marble. A marble is drawn from the bag, its color is noted, and then the marble is placed back into the bag. The bag is then shaken and a second marble is drawn and its color is noted. What is the probability that:

a.) Both marbles are white?

b.) A red then a green is selected?

3.) The same experiment is done except the first marble is **not replaced**. What is the probability that:

a.) Both marbles are white?

b.) A red then a green is selected?

4.) From a group of 3 girls and 6 boys, two will be chosen at random to attend a conference. What percent chance is there that the first person chosen is a boy and the second person chosen is a girl?

A.) 22%

B.) 25%

C.) 33%

D.) 50%

5.) A standard six-sided number cube is rolled. Find the probability of the given in simplest fraction form.

a) $P(\text{Even or a 1})$

b) $P(6 \text{ or less than } 3)$

c) $P(\text{even or greater than } 5)$

d) $P(\text{odd or divisible by } 3)$

6.) Using the spinner, find the probability of the given event in simplest fraction form.

a) $P(\text{white or gray})$

b) $P(\text{vowel or black})$

c) $P(G \text{ or not gray})$

d) $P(\text{vowel or consonant})$

