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Chapter 7 - Percent and Probability - Practice Test

Write each percent as a fraction or mixed number in simplest form.

1. 42%

$$42\% = \frac{\overset{21}{\cancel{42}}}{\underset{50}{\cancel{100}}}$$
$$= \frac{21}{50}$$

2. 110%

$$110\% = \frac{110}{100}$$
$$= 1\frac{\overset{1}{\cancel{10}}}{\underset{10}{\cancel{100}}}$$
$$= 1\frac{1}{10}$$

3. 18%

$$18\% = \frac{\overset{9}{\cancel{18}}}{\underset{50}{\cancel{100}}}$$
$$= \frac{9}{50}$$

4. $\frac{2}{5}$

$$\frac{2}{5} = \frac{x}{100}$$
$$\frac{2 \times 20}{5 \times 20} = \frac{x}{100}$$
$$\frac{40}{100} = \frac{x}{100}$$
$$40\% = x$$

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5. $\frac{11}{20}$

$$\frac{11}{20} = \frac{x}{100}$$
$$\frac{11 \times 5}{20 \times 5} = \frac{x}{100}$$
$$\frac{55}{100} = \frac{x}{100}$$
$$55\% = x$$

6. $1\frac{1}{2}$

$$1\frac{1}{2} = \frac{3}{2}$$
$$\frac{3}{2} = \frac{x}{100}$$
$$\frac{3 \times 50}{2 \times 50} = \frac{x}{100}$$
$$\frac{150}{100} = \frac{x}{100}$$
$$x = 150\%$$

7. **MULTIPLE CHOICE** Eighty-five percent of the students dressed up for spirit week. What fractional part of the student body did *not* dress up for spirit week?

A $\frac{17}{20}$

B $\frac{3}{20}$

C $\frac{1}{85}$

D $\frac{1}{5}$

$$100\% - 85\% = 15\%$$
$$15\% = \frac{15}{100}$$
$$= \frac{3}{20}$$

The correct answer is B.

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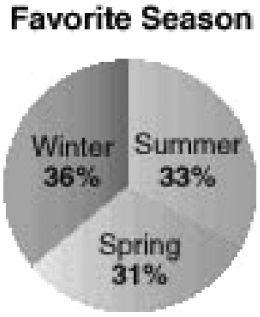
SEASONS Refer to the circle graph.



8. Which season is most frequently named as favorite?

The largest sector of the graph is 36%, for winter.

9. How does winter compare to summer as a favorite?

About $\frac{1}{3}$ as many people chose winter than summer.

10. 0.3

$$0.3 = \frac{3}{10}$$
$$= \frac{3 \times 10}{10 \times 10}$$
$$= \frac{30}{100}$$
$$= 30\%$$

11. 0.87

$$0.87 = \frac{87}{100}$$
$$= 87\%$$

12. 1.49

$$1.49 = \frac{149}{100}$$
$$= 149\%$$

13. $P(8)$

$$P(8) = \frac{\text{number of favorable outcomes}}{\text{number of possible outcomes}}$$
$$= \frac{1}{20}$$
$$P(8) = \frac{1}{20}, 0.05, \text{or } 5\%$$

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14. P(3 or 10)

$$P(3 \text{ or } 10) = \frac{\text{number of favorable outcomes}}{\text{number of possible outcomes}}$$
$$= \frac{2}{20}$$
$$= \frac{1}{10}$$
$$P(3 \text{ or } 10) = \frac{1}{10}, 0.10, \text{or } 10\%$$

15. P(prime)

The prime numbers are 2, 3, 5, 7, 11, 13, 17, and 19.

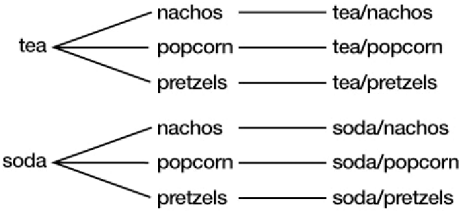
$$P(\text{prime}) = \frac{\text{number of favorable outcomes}}{\text{number of possible outcomes}}$$
$$= \frac{8}{20}$$
$$= \frac{2}{5}$$
$$P(\text{prime}) = \frac{2}{5}, 0.40, \text{or } 40\%$$

16. P(*not* odd)

There are 10 cards with numbers that are not odd: 2, 4, 6, 8, 10, 12, 14, 16, 18, and 20.

$$P(\text{not odd}) = \frac{\text{number of favorable outcomes}}{\text{number of possible outcomes}}$$
$$= \frac{10}{20}$$
$$= \frac{1}{2}$$
$$P(\text{not odd}) = \frac{1}{2}, 0.50, \text{or } 50\%$$

17. Draw a tree diagram that shows all of the choices for a beverage and a snack.



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18. Find the probability that the next customer who orders a beverage and a snack will choose iced tea and popcorn.

There are 6 possible outcomes, one of which is iced tea and popcorn. The probability is $\frac{1}{6}$.

19. Find the probability a student enjoys playing outside most.

$$P(\text{outside}) = \frac{\text{number of students who enjoy playing outside}}{\text{number of students surveyed}}$$
$$= \frac{31}{100}$$

$P(\text{outside}) = \frac{31}{100}$, 0.31, or 31%

20. If there are 280 students in the sixth grade, how many can be expected to enjoy playing outside most?

$$31\% \text{ of } 280 = 0.31(280)$$
$$\approx 87$$

About 87 students can be expected to prefer playing outside.

21. **MULTIPLE CHOICE** Jose was outside practicing free throws. He has made 10 out of 12 shots. If he shoots 24 more free throws, about how many free throws can he expect to make?

F 30
G 28
H 24
J 20

$$\frac{10}{12} = \frac{x}{24}$$
$$\frac{10 \times 2}{12 \times 2} = \frac{20}{24}$$
$$x = 20$$

The correct answer is J.

22. 19% of 51

$$19\% \text{ of } 51 \approx 20\% \text{ of } 50$$
$$= \frac{1}{5} \times 50$$
$$= 10$$

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23. 49% of 26

$$49\% \text{ of } 26 \approx 50\% \text{ of } 26$$
$$= \frac{1}{2} \times 26$$
$$= 13$$

24. 77% of 51

$$77\% \text{ of } 51 \approx 80\% \text{ of } 50$$
$$= \frac{4}{5} \times 50$$
$$= 40$$

25. 69% of 203

$$69\% \text{ of } 203 \approx 70\% \text{ of } 200$$
$$= \frac{7}{10} \times 200$$
$$= 140$$