(1) Which of the following inequalities is true for **all** real values of x?

A. $x^3 \geq x^2$

B. $3x^2 \geq 2x^3$

C. $(2x)^2 \geq 3x^2$

D. $3(x-2)^2 \geq 3x^2 - 2$

(5) Simplify:

$$2(2\sqrt{4})^{-2}$$

A. $\frac{1}{8}$

B. $\frac{1}{4}$

C. 16

D. 32

(18) Tyreke always leaves a tip of between 8% and 20% for the server when he pays for his dinner. This can be represented by the system of inequalities shown below, where y is the amount of tip and x is the cost of dinner.

$$y > 0.08x$$

$$y < 0.2x$$

Which of the following is a true statement?

A. When the cost of dinner (x) is \$10, the amount of tip (y) must be between \$2 and \$8.

B. When the cost of dinner (x) is \$15, the amount of tip (y) must be between \$1.20 and \$3.00.

C. When the amount of tip (y) is \$3, the cost of dinner (x) must be between \$11 and \$23.

D. When the amount of tip (y) is \$2.40, the cost of dinner (x) must be between \$3 and \$6.

29

The points scored by a football team are shown in the stem-and-leaf plot below.

Football-Team Points

0	6
1	2 3 4 7
2	0 3 4 4 7 8 8 8
3	0 7 8

Key
1 | 3 = 13 points

What was the median number of points scored by the football team?

A. 24

B. 27

C. 28

D. 32

30

A juice machine dispenses the same amount of juice into a cup each time the machine is used. The equation below describes the relationship between the number of cups (x) into which juice is dispensed and the gallons of juice (y) remaining in the machine.

$$x + 12y = 180$$

How many gallons of juice are in the machine when it is full?

A. 12

B. 15

C. 168

D. 180

31

The daily high temperatures, in degrees Fahrenheit (°F), of a town are recorded for one year. The median high temperature is 62°F. The interquartile range of high temperatures is 32. Which statement is **most likely** true?

A. Approximately 25% of the days had a high temperature less than 30°F.

B. Approximately 25% of the days had a high temperature greater than 62°F.

C. Approximately 50% of the days had a high temperature greater than 62°F.

D. Approximately 75% of the days had a high temperature less than 94°F.

32

A number cube with sides labeled 1 through 6 is rolled two times, and the sum of the numbers that end face up is calculated. What is the probability that the sum of the numbers is 3?

A. $\frac{1}{18}$

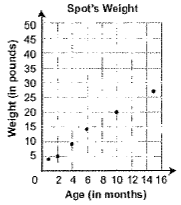
B. $\frac{1}{12}$

C. $\frac{1}{9}$

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

33

John recorded the weight of his dog Spot at different ages as shown in the scatter plot below.

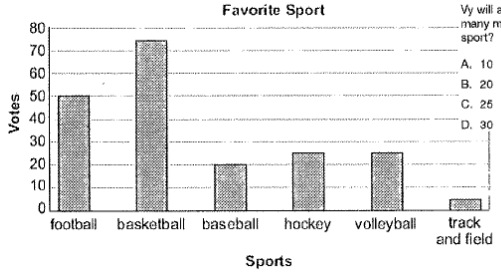


Based on the line of best fit, what will be Spot's weight after 18 months?

A. 27 pounds
B. 32 pounds
C. 36 pounds
D. 50 pounds

34

Vy asked 200 students to select their favorite sport and then recorded the results in the bar graph below.

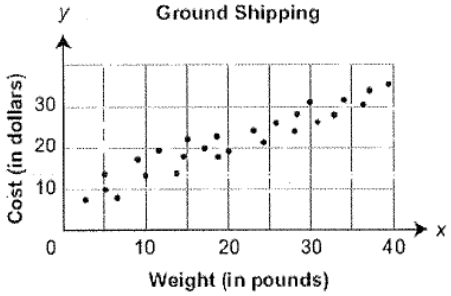


Vy will ask another 80 students to select their favorite sport. Based on the information in the bar graph, how many more students of the next 80 asked are likely to select basketball rather than football as their favorite sport?

A. 10
B. 20
C. 25
D. 30

35

The scatter plot below shows the cost (y) of ground shipping packages from Harrisburg, Pennsylvania, to Minneapolis, Minnesota, based on the package weight (x).



Which equation best describes the line of best fit?

A. $y = 0.37x + 1.57$

B. $y = 0.37x + 10.11$

C. $y = 0.68x + 2.32$

D. $y = 0.68x + 6.61$