Bellwork Alg 2 Monday, June 10, 2019

1. Use this set of data: 28, 29, 29, 31, 32, 32, 34, 35, 36, 38, 40, 43, 43, 44, 47, 48, 50, 51, 55, 59

a) What percentile is 43 at?

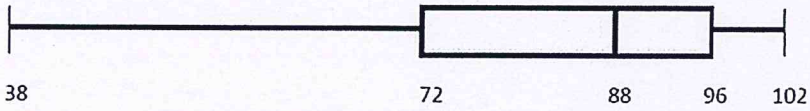
b) What number is at the 90th percentile?

c) What number is at the 35th percentile?

d) What percentile is 28 at?

2. Refer to the following Box-and-Whisker Plot that shows the test results of a math class.

Test Scores (as %) for 6th Period



a) What percent of the class scored between 38 and 96?

b) What percent of the class scored less than 75?

c) If a student from 6th period is selected at random what is the probability that they scored above at 96?

d) Do you think that this test was too hard for the students? Explain.

3. Simplify. State restrictions on the variable. $\frac{2x^3 - 8x^2}{x^2 - 8x + 16} \div \frac{10x^4 - 30x^3}{x^2 - 9x + 20}$

4. Find this difference. Don't state restrictions on the variable. $\frac{3x}{4x^2 + 28x + 40} - \frac{6}{2x^2 - 50}$

5. Solve this equation: $\frac{x}{x-3} - \frac{21}{x^2 + x - 12} = \frac{2}{x+4}$

Bellwork Alg 2 Monday, June 10, 2019 ANSWERS

1. Use this set of data: 28, 29, 29, 31, 32, 32, 34, 35, 36, 38, 40, 43, 43, 44, 47, 48, 50, 51, 55, 59 (20 #'s)

a) What percentile is 43 at?

$\frac{11}{20} \Rightarrow$ 55TH percentile

11 items before 55

b) What number is at the 90th percentile?

$(.90)(20) = 18$ The # with 18 items before it is: 55

c) What number is at the 35th percentile?

$(.35)(20) = 7$ The # with 7 items before it is 35

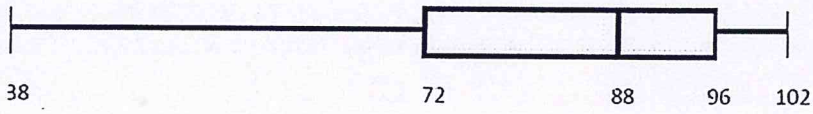
d) What percentile is 28 at?

0 items before 28

$\frac{0}{20} \Rightarrow$ 0th percentile

2. Refer to the following Box-and-Whisker Plot that shows the test results of a math class.

Test Scores (as %) for 6th Period



a) What percent of the class scored between 38 and 96? 75%

b) What percent of the class scored less than 75? Between 25% & 50%

c) If a student from 6th period is selected at random what is the probability that they scored above at 96?

25%

d) Do you think that this test was too hard for the students? Explain.

3. Simplify. State restrictions on the variable.

$$\frac{2x^3 - 8x^2}{x^2 - 8x + 16} \div \frac{10x^4 - 30x^3}{x^2 - 9x + 20}$$

$$= \frac{2x^2(x-4)}{(x-4)(x-4)} \cdot \frac{(x-4)(x-5)}{10x^3(x-3)}$$

$$= \frac{x-5}{5x(x-3)}$$

$x \neq 4, 0, 3, 5$

4. Find this difference. Don't state restrictions on the variable. $\frac{3x}{4x^2+28x+40} - \frac{6}{2x^2-50}$

$4(x^2+7x+10)$ $\quad$ $2(x^2-25)$

$4(x+2)(x+5)$ $\quad$ $2(x+5)(x-5)$

$$\frac{(x-5)}{(x-5)} \cdot \frac{3x}{4(x+2)(x+5)} - \frac{6}{2(x+5)(x-5)} \cdot \frac{2(x+2)}{2(x+2)}$$

$$= \frac{3x(x-5) - 12(x+2)}{4(x+2)(x\pm5)} = \frac{3x^2-15x-12x-24}{4(x+2)(x\pm5)} = \boxed{\frac{3x^2-27x-24}{4(x+2)(x\pm5)}}$$

5. Solve this equation: $\frac{x}{x-3} - \frac{21}{x^2+x-12} = \frac{2}{x+4}$

$$\Rightarrow (x+4)(x-3)\left(\frac{x}{x-3} - \frac{21}{(x-3)(x+4)}\right) = \frac{2}{x+4}(x+4)(x-3)$$

$$\Rightarrow x(x+4) - 21 = 2(x-3)$$

$$\Rightarrow x^2+4x-21 = 2x-6$$
$$-2x+6 \qquad -2x+6$$

$$\Rightarrow x^2+2x-15=0$$

$$(x+5)(x-3)=0$$

$$x = 3, -5$$

$$\boxed{x=-5}$$