SAT Packet 2

1. If the median of 2, 4, 6, and x is 4.2, what is the average of these four numbers? **Calculator problem**

2. A set of numbers has a sum of 48 and an average of 6. How many numbers are in the set?

3. If p varies inversely as q and p=4 and q=6, which of the following is the solution for p and q?

a. p=8 q=12 b. p=8 q=10 c. p=12 q=1 d. p=12 q=2

4. If $\frac{-3}{8} \leq \frac{m}{-2} + 8 \leq 7$, what is one possible value of 4m-2?

5. Fish lengths are 6, 9, 9, 36, 39, and x inches. If the median is 15, what is the mean? a. 15 b. 16.5 c. 19 d. 20 **Calculator problem**

6. $\frac{3(t+2)}{4} = \frac{100-5t+44}{8}$ what is the value of t? **Calculator problem**

a. -69 b. 4 c. 12 d. 36

7. In the xy-plane, the graph of y=(3x-6)(x-6) represents a parabola. If the x- and y-coordinates of the parabola's vertex are to be expressed as constants or coefficients, which of the following forms of the equation is appropriate?

a. y=(3x-6)(x-6) b. $y=3(x-4)^2+(-12)$ c. $y=3(x^2-8x+12)$ d. $y=3x^2-24x+36$

8. Line B passes through (-3,1) and (-1,2). Line C is parallel to line B and contains (3, -2). Which is the equation of Line C?

a. y=2x-8 b. $y=\frac{1}{2}x-\frac{7}{2}$ c. $y=\frac{1}{2}x-\frac{1}{2}$ d. $y=\frac{-1}{2}x-\frac{7}{2}$

9. If $y=x^2+x-20$ and $z=x^2+10x+25$, what is $\frac{y^2}{z}$ in terms of x?

a. $\frac{x^4-8}{10x}$ b. $\frac{x^4+x^2-400}{x^2+10x+25}$ c. $x^2-8x-15$ d. $x^2-8x+16$

10. Based on the system of equations below, what is the value of $\frac{x}{y}$?

2x-96=4y-x 3y+10x=y+90 **Calculator problem**

a. -4/5 b. -3/4 c. -1/5 d. 4/3

11. Larissa uploaded 40,000 songs from her computer to her web storage. The mean file size of a song is 0.022 gigabytes and the total time to upload all the files was 7.5 hours. If 1 gigabyte is equal to 1024 MB, what is the upload rate for the files in MB per second rounded to the nearest hundredth? **Calculator problem**

a. 1.48 b. 3.00 c. 33.37 d. 250.28

12. If 8s=4t+17 and 6t-5s=4, what is the value of 6s+4t?

13. Circle C is defined by the equation $x^2+y^2-8x+ky=172$ and parabola P is defined by the equation $y=x^2-8x+22$. For what value of k will Circle C be centered at the vertex of Parabola P?

a) -12 b)-4 c)6 d)8

14. What is the length of the diameter of this circle?

$(x-2)^2+ (y+8)^2 = 144$

15. For how many values of x does p(x)=0?

$p(x) = \frac{(x+4)(x-4)\sqrt{-x}}{x+4}$

16. Which of the following ordered pairs (x,y) satisfies both equations

$x = \frac{1}{2}y + 3$ $y = x^2-5x+6$?

a. (0,3) b. (2, -2) c. (4,2) d. (6, 12)

17. If (j,k) is the solution to the system of equations

-4j-10k=50 j-3k=4 What is the value of j? **Calculator problem**

a. 13 b. -5 c. -7 d. -10

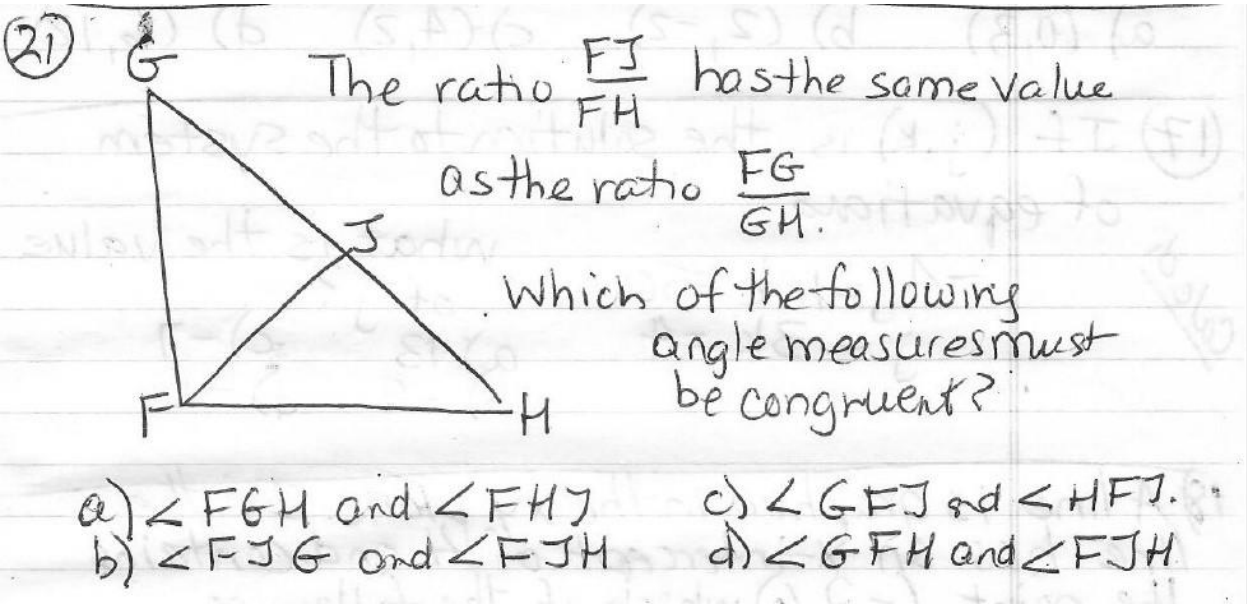
18. A line is graphed in the xy-plane. If the line has an x-intercept of 4 and contains the point (-2,6), which of the following cannot be true?

a. The point (-10, -6) is on the line
b. The slope of the line is negative
c. The y-intercept is positive
d. The point (10,-6) is on the line

19. $(a^{\frac{1}{3}}b^{\frac{1}{4}})^3(a^{\frac{1}{3}}b^{\frac{1}{4}})^4 = a^{\frac{k}{3}}b^{\frac{k}{4}}$ What is the value of k?

20. x=(y+5)(y-15) What is the y-coordinate of the parabola's vertex?

a. 5 b. 10 c. 25 d. 100



22. Monica sells homemade jams. She made half as many ounces of jam on Wednesday as she did on Thursday. She made a total of 3 pounds and 6 ounces of jam on those two days. How many ounces did she make on Thursday? (16 ounces=1 pound) **Calculator problem**

23. 6(2y+z) = 12y+18 For what value of z does the equation have an infinite number of solutions?

24. A college bookstore makes a profit of $0.75 for every 12 pencils it sells. Which of the following is the profit the store makes for selling 20 pencils?

a) $0.75 b) $0.95 c) $1.25 d) $2.22 **Calculator problem**

25. A team of scientists is tracking a snail that is moving at a rate of 700 millimeters per minute. If there are 10 millimeters in a centimeter, at what rate does the snail move in centimeters per hour?

a. 4,200 b. 7,000 c. 42,000 d. 420,000 **Calculator problem**

26. Approximately what percent are right-handed varsity athletes?

	Left-handed	Right-handed
Varsity	11	98
Junior Varsity	17	144

a. 6% b. 36% c.53% d. 98%

27. $5(\frac{y}{2}+5)=2y+\frac{1}{2}y+25$

Which describes the solution to the above equation?

a) The only solution is $y=1\frac{1}{2}$ c) The equation has infinitely many solutions

b) The only solution is y=10 d) The equation has no solutions

28. Equal amounts of fencing are used to surround both an octagonal area and a square area. If each side of the octagon is 5 yards shorter than each side of the square, how many yards of fencing are needed to surround each area?

a) 10 b) 20 c) 40 d) 60

29. Which of the following is an equivalent form of $g(x)=\frac{3x+9}{3x^2-3x-18}$

that displays as constants or coefficients values that are not part of the domain?

a. $g(x)=\frac{1}{3x^2}$ b. $g(x)=\frac{1}{x-2}$ c. $g(x)=\frac{x+3}{x^2-x-6}$ d. $g(x)=\frac{3(x+3)}{3(x-3)(x+2)}$

30. A particle accelerates at a constant rate from a velocity of 20 meters per second to a velocity of 50 meters per second in 10 seconds. Which of the following expresses the velocity V, in meters per seconds, in terms of time, t, in seconds, after the acceleration began, for $0 \leq t \leq 10$?

a) V=-50+3t b) V=20+3t c) V=-20-3t d) V=50-3t

31. If the function h is defined by $h(x)=2x^2-7x-3$, what is h(x+3)?

a) $2x^2-7x$ b) $2x^2-7x-6$ c) $2x^2+5x-6$ d) $2x^2-23x+15$

32. For all integers x, @x=2x. What is @3-@2 equal to?

a) @4 b) @2 c)@1 d)@-2

Answers: 1) 4.1, 2) 8, 3) d, 4) any number from 6 to 65 inclusive, 5) d, 6) c, 7) b, 8) b, 9) d, 10) a, 11) c, 12) 42, 13) a, 14) 24, 15) 2, 16) c, 17) b, 18) a, 19) c, 20) a, 21) a, 22) 36, 23) 3, 24) c, 25) a, 26) b, 27) c, 28) c, 29) d, 30) b, 31) c, 32) c