

10. If $x > 1$, then which of the following has the LEAST value?

F. \sqrt{x}

G. $\sqrt{2x}$

H. $\sqrt{x \cdot x}$

J. $x\sqrt{x}$

K. $x \cdot x$

48. Which of the following expressions has a positive value for all x and y such that $x > 0$ and $y < 0$?

F. $y - x$

G. $x + y$

H. x^3y

J. $\frac{x^2}{y}$

K. $\frac{x}{y^2}$

55. If x and y are real numbers such that $x > 1$ and $y < -1$, then which of the following inequalities *must* be true?

A. $\frac{x}{y} > 1$

B. $|x|^2 > |y|$

C. $\frac{x}{3} - 5 > \frac{y}{3} - 5$

D. $x^2 + 1 > y^2 + 1$

E. $x^{-2} > y^{-2}$

52. Which of the following is true for all consecutive integers m and n such that $m < n$?
- F. m is odd
 - G. n is odd
 - H. $n - m$ is even
 - J. $n^2 - m^2$ is odd
 - K. $m^2 + n^2$ is even

- 53.** For real numbers a and b , when is the equation $|a + b| = |a - b|$ true?
- A.** Always
 - B.** Only when $a = b$
 - C.** Only when $a = 0$ and $b = 0$
 - D.** Only when $a = 0$ or $b = 0$
 - E.** Never

2 $\triangle \triangle \triangle \triangle \triangle$ REGARDLESS OF SIGN, what would product be? The biggest number 2

54. If $2 \leq x \leq 5$ and $-4 \leq y \leq -3$, what is the maximum

value of $|y - 2x|$? largest $x \rightarrow 5$ largest $y \rightarrow -4 \Rightarrow | -4 - 10 | = 14$

6 \rightarrow Take the extreme of both. $| -4 - 2(5) | = 14$
 $| -4 - 10 | = 14$

- F. 20
- G. 14
- H. 13
- J. 8
- K. 7

24. For nonzero numbers x and y , which of the following expressions is NOT equivalent to $\frac{-x}{y}$?

"Which of the following" questions require you to test each one

F. $\frac{-x}{-y}$

G. $\frac{x}{-y}$

H. $\frac{x}{y}$

J. $\frac{-yx}{xy}$

K. $-\frac{y}{x}$

$\frac{-x}{-y} = \frac{-1(x)}{-1(y)}$
 $\frac{-x}{y} = -1\left(\frac{x}{y}\right) = \frac{-1(x)}{y} = \frac{x}{-1(y)}$

Reciprocal

9. If $a > 0$ and $b < 0$, then the sum of a and b :
- A. is always positive.
 - B. is always negative.
 - C. is always zero.
 - D. cannot be zero, but can be any other real number.
 - E. can be any real number.

24. In the equation $m = \frac{3}{1+q}$, q represents a positive integer. As q gets larger and larger without bound, the value of m :

- F. gets closer and closer to 0.
- G. gets closer and closer to 1.
- H. gets closer and closer to 3.
- J. remains constant.
- K. gets larger and larger.

INTEGERS are the whole numbers that are + or -.

5. For integers a and b such that $ab = 8$, which of the following is NOT a possible value of a ?

- A. 2
- B. 1
- C. -4
- D. -6
- E. -8

b is an integer

Solve for b and see where a does NOT produce an integer for b . $b = \frac{8}{a}$

→

43. If the product of 5 integers is positive, at least how many of these 5 integers must be positive?

- A. 1
- B. 2
- C. 3
- D. 4
- E. 5

4 of the integers could be negative and one positive and you could still end up with a positive number.

~~INEQUALITIES~~

60. When $-3 \leq x \leq 4$ and $-1 \leq y \leq 2$, what is the least possible value for $x - y$?

DO YOUR FIGURING HERE.

You can start with the smallest value and work backward

- F →
- F. -5
 - G. -3
 - H. -2
 - J. 3
 - K. 5

END OF TEST 2

STOP! DO NOT TURN THE PAGE UNTIL TOLD TO DO SO.

DO NOT RETURN TO THE PREVIOUS TEST.

-5 would work with
 $x - y$

-3 - 2 and you $-3 - 2 = -5$

The least x is -3
and the greatest y is 2

$$-3 - 2 = -5$$

- 2.** What is the smallest possible product for two integers whose sum is 26?
- f.** 25
 - g.** 15
 - h.** 154
 - i.** 144
 - j.** 26

46. If $a < b$, then $|a - b|$ is equivalent to which of the following?

F. $a + b$

G. $-(a + b)$

H. $\sqrt{a - b}$

J. $a - b$

K. $-(a - b)$