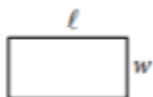


SAT Math Formula Sheet

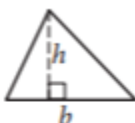


$$A = \pi r^2$$

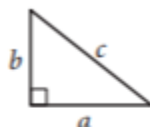
$$C = 2\pi r$$



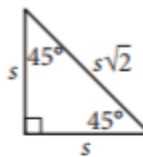
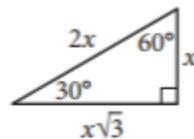
$$A = \ell w$$



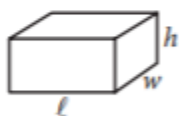
$$A = \frac{1}{2}bh$$



$$c^2 = a^2 + b^2$$



Special Right Triangles



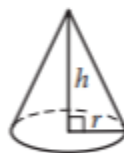
$$V = \ell wh$$



$$V = \pi r^2 h$$



$$V = \frac{4}{3}\pi r^3$$



$$V = \frac{1}{3}\pi r^2 h$$



$$V = \frac{1}{3}\ell wh$$

The number of degrees of arc in a circle is 360.

The number of radians of arc in a circle is  $2\pi$ .

The sum of the measures in degrees of the angles of a triangle is 180.

NC Set #6 Part A

1. If  $5x + 6 = 10$ , what is the value of  $10x + 3$  ?

A) 4  
B) 9  
C) 11  
D) 20

2. 
$$\begin{aligned}x + y &= 0 \\3x - 2y &= 10\end{aligned}$$

Which of the following ordered pairs  $(x, y)$  satisfies the system of equations above?

A)  $(3, -2)$   
B)  $(2, -2)$   
C)  $(-2, 2)$   
D)  $(-2, -2)$

3. 
$$9a^4 + 12a^2b^2 + 4b^4$$

Which of the following is equivalent to the expression shown above?

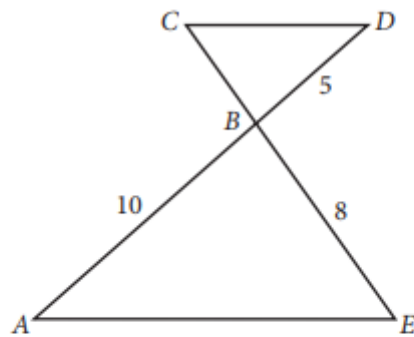
A)  $(3a^2 + 2b^2)^2$   
B)  $(3a + 2b)^4$   
C)  $(9a^2 + 4b^2)^2$   
D)  $(9a + 4b)^4$

4.

$$2x(3x + 5) + 3(3x + 5) = ax^2 + bx + c$$

In the equation above,  $a$ ,  $b$ , and  $c$  are constants. If the equation is true for all values of  $x$ , what is the value of  $b$ ?

5.



In the figure above,  $\overline{AE} \parallel \overline{CD}$  and segment  $AD$  intersects segment  $CE$  at  $B$ . What is the length of segment  $CE$ ?

NC Set #6 Part A Key

1. C

2. B

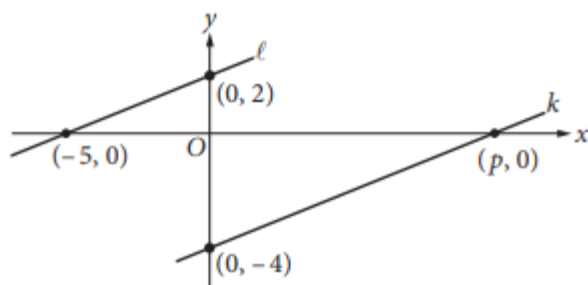
3. A

4. 19

5. 12

NC Set #6 Part B

1.



In the  $xy$ -plane above, line  $\ell$  is parallel to line  $k$ .  
What is the value of  $p$ ?

- A) 4
- B) 5
- C) 8
- D) 10

2.

Which of the following complex numbers is

equivalent to  $\frac{3-5i}{8+2i}$ ? (Note:  $i = \sqrt{-1}$ )

- A)  $\frac{3}{8} - \frac{5i}{2}$
- B)  $\frac{3}{8} + \frac{5i}{2}$
- C)  $\frac{7}{34} - \frac{23i}{34}$
- D)  $\frac{7}{34} + \frac{23i}{34}$

3.

What is the sum of all values of  $m$  that satisfy

$$2m^2 - 16m + 8 = 0?$$

- A) -8
- B)  $-4\sqrt{3}$
- C)  $4\sqrt{3}$
- D) 8

4.

$$R = \frac{F}{N + F}$$

A website uses the formula above to calculate a seller's rating,  $R$ , based on the number of favorable reviews,  $F$ , and unfavorable reviews,  $N$ . Which of the following expresses the number of favorable reviews in terms of the other variables?

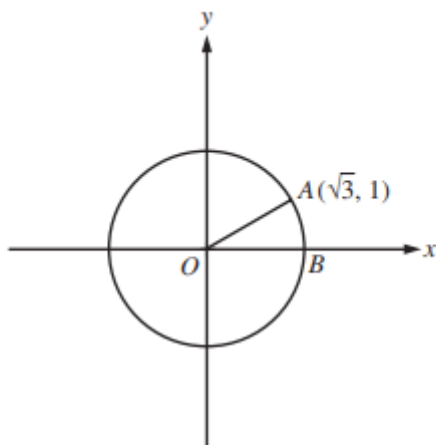
A)  $F = \frac{RN}{R - 1}$

B)  $F = \frac{RN}{1 - R}$

C)  $F = \frac{N}{1 - R}$

D)  $F = \frac{N}{R - 1}$

5.



In the  $xy$ -plane above,  $O$  is the center of the circle, and the measure of  $\angle AOB$  is  $\frac{\pi}{a}$  radians. What is the value of  $a$ ?

NC Set #6 Part B Key

1. D

2. C

3. D

4. B

5. 6

NC Set #6 Part C

1. A landscaping company estimates the price of a job, in dollars, using the expression  $60 + 12nh$ , where  $n$  is the number of landscapers who will be working and  $h$  is the total number of hours the job will take using  $n$  landscapers. Which of the following is the best interpretation of the number 12 in the expression?

- A) The company charges \$12 per hour for each landscaper.
- B) A minimum of 12 landscapers will work on each job.
- C) The price of every job increases by \$12 every hour.
- D) Each landscaper works 12 hours a day.

2. 
$$\sqrt{2k^2 + 17} - x = 0$$

If  $k > 0$  and  $x = 7$  in the equation above, what is the value of  $k$  ?

- A) 2
- B) 3
- C) 4
- D) 5

3. 
$$nA = 360$$

The measure  $A$ , in degrees, of an exterior angle of a regular polygon is related to the number of sides,  $n$ , of the polygon by the formula above. If the measure of an exterior angle of a regular polygon is greater than  $50^\circ$ , what is the greatest number of sides it can have?

- A) 5
- B) 6
- C) 7
- D) 8



4.

If  $\frac{x^{a^2}}{x^{b^2}} = x^{16}$ ,  $x > 1$ , and  $a + b = 2$ , what is the value

of  $a - b$  ?

- A) 8
- B) 14
- C) 16
- D) 18

5.

The sales manager of a company awarded a total of \$3000 in bonuses to the most productive salespeople. The bonuses were awarded in amounts of \$250 or \$750. If at least one \$250 bonus and at least one \$750 bonus were awarded, what is one possible number of \$250 bonuses awarded?

NC Set #6 Part C Key

1. A

2. C

3. C

4. A

5. 3, 6, or 9

NC Set #6 Part D

- The graph of a line in the  $xy$ -plane has slope 2 and contains the point  $(1, 8)$ . The graph of a second line passes through the points  $(1, 2)$  and  $(2, 1)$ . If the two lines intersect at the point  $(a, b)$ , what is the value of  $a + b$  ?

A) 4  
B) 3  
C) -1  
D) -4
  
- Which of the following equations has a graph in the  $xy$ -plane for which  $y$  is always greater than or equal to  $-1$  ?

A)  $y = |x| - 2$   
B)  $y = x^2 - 2$   
C)  $y = (x - 2)^2$   
D)  $y = x^3 - 2$
  
- A radioactive substance decays at an annual rate of 13 percent. If the initial amount of the substance is 325 grams, which of the following functions  $f$  models the remaining amount of the substance, in grams,  $t$  years later?

A)  $f(t) = 325(0.87)^t$   
B)  $f(t) = 325(0.13)^t$   
C)  $f(t) = 0.87(325)^t$   
D)  $f(t) = 0.13(325)^t$

4. The expression  $\frac{5x-2}{x+3}$  is equivalent to which of the following?

A)  $\frac{5-2}{3}$

B)  $5 - \frac{2}{3}$

C)  $5 - \frac{2}{x+3}$

D)  $5 - \frac{17}{x+3}$

- 5.

$$\begin{aligned}ax + by &= 12 \\ 2x + 8y &= 60\end{aligned}$$

In the system of equations above,  $a$  and  $b$  are constants. If the system has infinitely many solutions, what is the value of  $\frac{a}{b}$  ?

NC Set #6 Part D Key

1. B

2. C

3. A

4. D

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