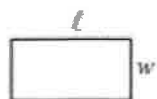


SAT Math Formula Sheet

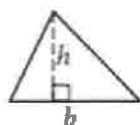


$$A = \pi r^2$$

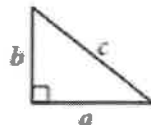
$$C = 2\pi r$$



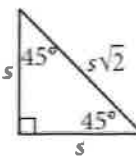
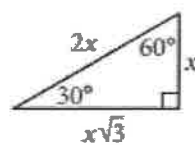
$$A = \ell w$$



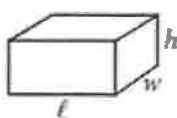
$$A = \frac{1}{2}bh$$



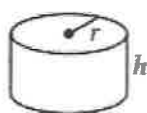
$$c^2 = a^2 + b^2$$



Special Right Triangles



$$V = \ell wh$$



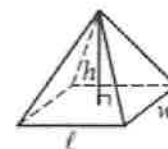
$$V = \pi r^2 h$$



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



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



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

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

The number of radians of arc in a circle is 2π .

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

NC Set #2 Part A

1.

$$h = 3a + 28.6$$

A pediatrician uses the model above to estimate the height h of a boy, in inches, in terms of the boy's age a , in years, between the ages of 2 and 5. Based on the model, what is the estimated increase, in inches, of a boy's height each year?

- A) 3
- B) 5.7
- C) 9.5
- D) 14.3

2.

$$(x^2y - 3y^2 + 5xy^2) - (-x^2y + 3xy^2 - 3y^2)$$

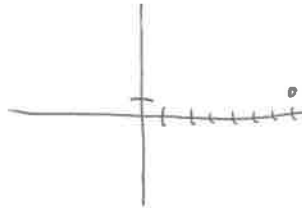
Which of the following is equivalent to the expression above?

- A) $4x^2y^2$
- B) $8xy^2 - 6y^2$
- C) $2x^2y + 2xy^2$
- D) $2x^2y + 8xy^2 - 6y^2$

3.

A line in the xy -plane passes through the origin and has a slope of $\frac{1}{7}$. Which of the following points lies on the line?

- A) (0, 7)
- B) (1, 7)
- C) (7, 7)
- D) (14, 2)



4. If $(ax+2)(bx+7) = 15x^2 + cx + 14$ for all values of x , and $a+b=8$, what are the two possible values for c ?

- A) 3 and 5
- B) 6 and 35
- C) 10 and 21
- D) 31 and 41

$$abx^2 + 7ax + 2bx + 14 = 15x^2 + cx + 14$$

$$abx^2 + 7ax + 2bx = 15x^2 + cx$$

so, $ab=15$ and $a+b=8$

$$a=3,5 \quad b=3,5$$

$$7ax + 2bx = cx$$

$$x(7a + 2b) = x(c)$$

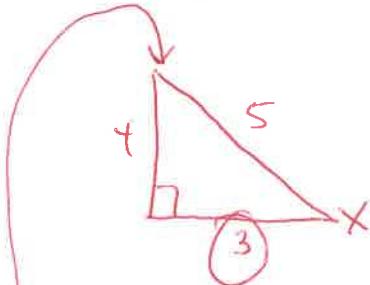
$$7a + 2b = c$$

$$7(3) + 2(5) = 31$$

$$7(5) + 2(3) = 41$$

In a right triangle, one angle measures x° , where

5. $\sin x^\circ = \frac{4}{5}$. What is $\cos(90^\circ - x^\circ)$?



$$a^2 + (4)^2 = (5)^2$$

$$a = 3$$

$\cos(90-x) = \text{other angle}$

$$\cos \frac{a}{h}$$

$$\frac{4}{5}$$

NC Set #2 Part A Key

1. A

2. C

3. D

4. D

5. 4/5

NC Set #2 Part B

1.

$$\begin{aligned} 3x + 4y &= -23 \\ -2(2y - x) &= -19 \end{aligned}$$

What is the solution (x, y) to the system of equations above?

- A) $(-5, -2)$
- B) $(3, -8)$
- C) $(4, -6)$
- D) $(9, -6)$

$$\begin{aligned} 3x + 4y &= -23 \\ \cancel{2x} - 4y &= 38 \\ \hline 5x &= 15 \\ x &= 3 \end{aligned}$$

2.

$$g(x) = ax^2 + 24$$

For the function g defined above, a is a constant and $g(4) = 8$. What is the value of $g(-4)$?

- A) 8
- B) 0
- C) -1
- D) -8

$$\begin{aligned} ax^2 + 24 \\ 8 &= a(4)^2 + 24 \\ 8 &= 16a + 24 \\ -1 &= a \end{aligned}$$

$$\begin{aligned} h(x) &= -1(x^2) + 24 \\ h(-4) &= -1(-4)^2 + 24 \\ &= -16 + 24 \end{aligned}$$

3.

$$\begin{aligned} b &= 2.35 + 0.25x \\ c &= 1.75 + 0.40x \end{aligned}$$

In the equations above, b and c represent the price per pound, in dollars, of beef and chicken, respectively, x weeks after July 1 during last summer. What was the price per pound of beef when it was equal to the price per pound of chicken?

- A) \$2.60
- B) \$2.85
- C) \$2.95
- D) \$3.35

$$\begin{aligned} b &= 2.35 + 0.25(4) \\ b &= 3.35 \end{aligned}$$

$$2.35 + 0.25x = 1.75 + 0.40x$$

$$0.60 = 0.15x$$

$$4 = x$$

4. If $a = 5\sqrt{2}$ and $2a = \sqrt{2x}$, what is the value of x ?

$$\begin{aligned}2(5\sqrt{2}) &= \sqrt{2x} \\ [2(5\sqrt{2})]^2 &= (\sqrt{2x})^2 \\ 200 &= 2x \\ 100 &= x\end{aligned}$$

5. If $m < 0$, find the value of m that satisfies $2m^2 - 5m = 3$

$$2m^2 - 5m - 3 = 0$$

$$\frac{2m^2}{-6m} \quad \frac{2m^2}{m}$$

$$\begin{array}{c} 6 \\ \wedge \\ -6 \end{array}$$

$$(m-3)(2m+1) = 0$$

$$\cancel{m=3}$$

$$m = -\frac{1}{2}$$

NC Set #2 Part B Key

1. B

2. A

3. D

4. 100

5. $-1/2$

NC Set #2 Part C

1. Which of the following is a solution to the system of equations below?

$$4x - y = 7$$

$$-2(2x + 3y = 21)$$

A) (5,3)

B) (3,5)

C) (0,4)

D) (3,7)

$$\begin{array}{r} 4x - y = 7 \\ -4x - 6y = -42 \\ \hline -7y = -35 \\ y = 5 \end{array}$$

2. Which of the following is equivalent to the expression below?

$$(a^2b + 2ab - 3b^2) - (2ab - 6b^2 + 5a^2b)$$

A) $6a^2b - 9b^2$

B) $-4a^2b + 4ab + 3b^2$

C) $6a^2b + 4ab - 9b^2$

D) $-4a^2b + 3b^2$

3. $f(x) = bx^2 - 5$

For the function f above, if b is constant and $f(2)=7$, what is the value of $f(-2)$?

A) -7

B) -5

C) 5

D) 7

$$7 = b(2)^2 - 5$$

$$7 = 4b - 5$$

$$12 = 4b$$

$$3 = b$$

$$g(x) = 3x^2 - 5$$

$$g(-2) = 3(-2)^2 - 5$$

$$g(-2) = 7$$

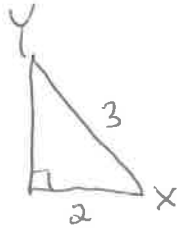
4. If $a = 2\sqrt{5}$ and $3a = \sqrt{30x}$, what is the value of x ?

$$[3(2\sqrt{5})]^2 = [\sqrt{30x}]^2$$

$$180 = 30x$$

$$6 = x$$

5. In a right triangle, where one acute angle measures x° , if $\cos(x^\circ) = 2/3$, what is $\sin(90-x)^\circ$?



$$\sin = \frac{2}{3}$$

NC Set #2 Part C Key

1. B

2. D

3. D

4. 6

5. $\frac{2}{3}$