

Name _____

Date _____

Block _____

A.14

1.

A weather balloon in the shape of a sphere has a surface area of 160 square meters. If the formula for the surface area of a sphere is $S.A. = 4\pi r^2$, to the nearest tenth of a meter, what is the radius of the balloon?

- A 2.0 m
- B 3.6 m
- C 11.2 m
- D 12.7 m

2.

The velocity of an object in a liquid can be described by the equation $v = 20 - t - t^2$ where v is the velocity in meters per second and t is time in seconds. At what time will $v = 0$?

- F 4 sec
- G 5 sec
- H 6 sec
- J 7 sec

3.

The stress distribution on a structure is given by $s = 2x^2 + 4x - 30$ where s is stress in pounds per square inch and x is the distance in feet from a reference point. At what distance is the stress equal to 0?

- A 3 ft
- B 5 ft
- C 6 ft
- D 12 ft

4.

$$x^2 - 4 = 0$$

Which is the solution set for the equation above?

- F $\{-4, 1\}$
- G $\{-2, 2\}$
- H $\{-1, 4\}$
- J $\{0, 4\}$

5.

The left side of a solid block is held at a constant temperature of 200°C . The temperature profile within the block is given by $T = 200 - 5x - x^2$ where x is the distance from the left side of the block in centimeters and T is the temperature in degrees Celsius of the block at location x . At what value of x is $T = 50^\circ\text{C}$?

- F $x = 5$ cm
- G $x = 10$ cm
- H $x = 15$ cm
- J $x = 20$ cm

6.

Which of the following is a solution of the equation

$$x^2 - 13x + 40 = 0?$$

- F -8
- G 4
- H 5
- J 10

7.

The formula for the surface area of a cylinder is $SA = 2\pi r(h + r)$. What is the value of SA when $r = 3$ centimeters and $h = 4$ centimeters?

- A 28π cm²
- B 32π cm²
- C 36π cm²
- D 42π cm²

8.

Which is a solution to $(2x + 3)^2 = 25$?

- F -4
- G -2
- H -1
- J 2