Name_____ Session 1 2 3 (Circle one) Date_____

DD4

1.

The length of a rectangle is $4r^2s^5t^3$ units, and the rectangle's area is $20r^5s^7t^4$ square units. If $r \neq 0$, $s \neq 0$, and $t \neq 0$, which of the following best describes the width of the rectangle?

**F** $5r^3s^2t$ units

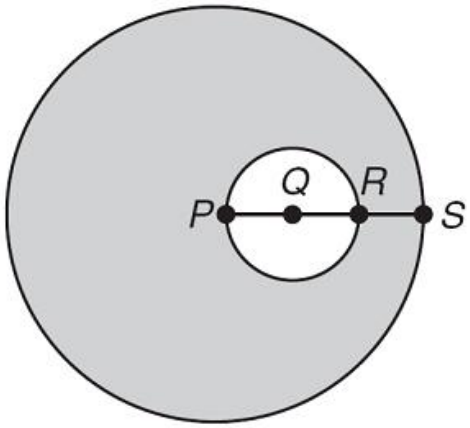
**G** $5r^7s^{12}t^7$ units

**H** $16r^3s^2t$ units

**J** $24r^7s^{12}t^7$ units

2.

The figure below shows circle $P$ and circle $Q$. $\overline{PQ}$, $\overline{QR}$, and $\overline{RS}$ are each 3 units long.




What is the area of the shaded region in terms of $\pi$?

**A** $36\pi$

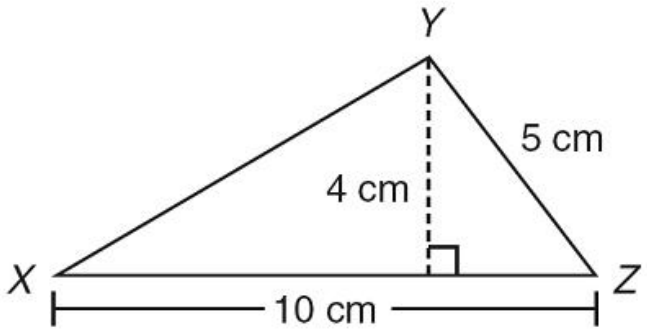
**B** $72\pi$

**C** $12\pi$

**D** $78\pi$

3.

Triangle $XYZ$ is shown below.




What is the length of $\overline{XY}$?

**F** $\sqrt{65}$ cm

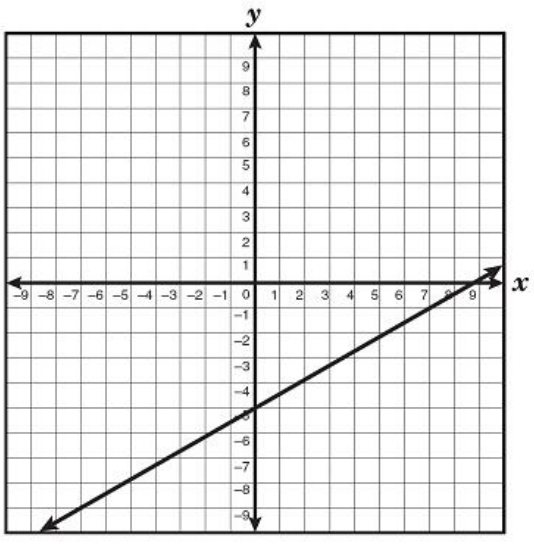
**G** $\sqrt{33}$ cm

**H** $\sqrt{75}$ cm

**J** $\sqrt{116}$ cm

4.

Which equation best represents the line graphed below?




**F** $7x + 4y = 35$

**G** $4x - 7y = 35$

**H** $4x + 7y = -35$

**J** $7x - 4y = -35$

5.

Which of the following expressions is equivalent to the expression $-5x(2x + 7y) + 7xy - 4x(y + 3)$?

**A** $-10x^2 + 7y + 3xy + 3$

**B** $-10x^2 + 38xy + 12x$

**C** $-10x^2 - 32xy - 12x$

**D** $-10x^2 - 38xy + 12x$

6.

The graph below shows John's weekly earnings as a function of his total weekly merchandise sales.


Which is closest to John's total earnings if he sells $650 of merchandise in one week?

**A** $220

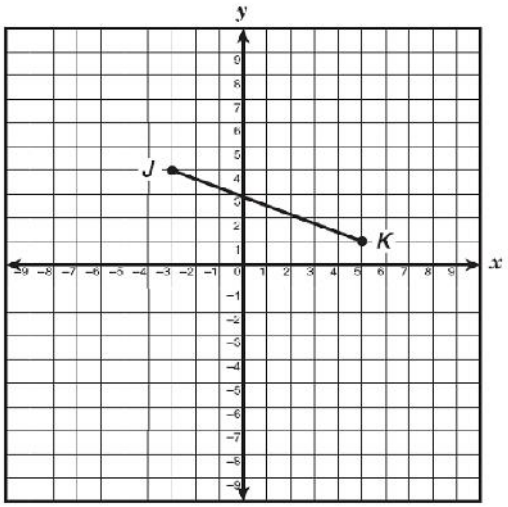
**B** $260

**C** $240

**D** $250

7.

Line segment $JK$ is graphed on the coordinate grid.




Which of the following best represents the slope of a line perpendicular to segment $JK$?

**A** $-\frac{3}{8}$

**B** $\frac{8}{3}$

**C** $\frac{3}{8}$

**D** $-\frac{8}{3}$

8.

At an ice-cream shop, customers can order a sundae with 1 type of ice cream, 1 type of sauce, and 1 type of topping. The types of ice cream, sauces, and toppings offered are shown below.

Choices at an Ice-Cream Shop

| Ice Cream | Sauce | Topping |
|---|---|---|
| Chocolate | Caramel | Chocolate chips |
| Strawberry | Strawberry | Peanuts |
| Vanilla | Chocolate | Raisins |
| | Butterscotch | Strawberries |
| | | Walnuts |

If each type of ice cream, sauce, and topping is equally likely to be selected, what is the probability that a customer will order a sundae with vanilla ice cream, caramel sauce, and walnuts?

**F** $\frac{1}{60}$

**G** $\frac{1}{4}$

**H** $\frac{1}{11}$

**J** $\frac{1}{12}$