

- 1) Simplify the expression below and write the answer as a polynomial.

$$-5(2r^2 + 6r - 8) + 4(-3r^2 - 7r + 3)$$

- A. $22r^2 + r + 5$
- B. $-22r^2 - r - 5$
- C. $-22r^2 + 58r + 28$
- D. $-22r^2 - 58r + 52$
- E. $-22r^2 - 58r - 28$

- 2) What is the domain (in interval notation) for the function below?

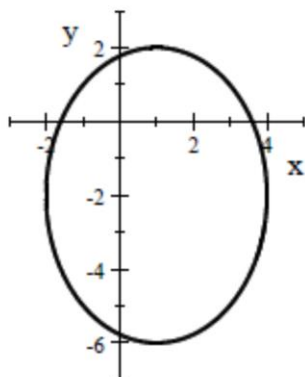
$$g(x) = \sqrt{9 - 2x}$$

- A. $\left(-\infty, \frac{9}{2}\right]$
- B. $\left(-\infty, -\frac{9}{2}\right]$
- C. $\left[-\frac{9}{2}, \infty\right)$
- D. $\left[\frac{9}{2}, \infty\right)$
- E. $\left(-\infty, \frac{9}{2}\right)$

- 3) If $f(x) = -x^2 + 4x + 2$, find $f(r+3)$.

- A. $-r^2 - 2r - 4$
- B. $-r^2 - 2r + 5$
- C. $r^2 + 2r - 5$
- D. $-r^2 + 4r + 5$
- E. $-r^2 + 10r + 23$

- 4) What is the range of the relation shown in the graph below. (Each hash mark on each axis represents one unit.)



- A. $[-2, 4]$
- B. $[-6, 2]$
- C. $(-\infty, \infty)$
- D. $[-4, 2]$
- E. $[-2, 6]$

- 5) What polynomial is equal to $(2x-9)^3$?

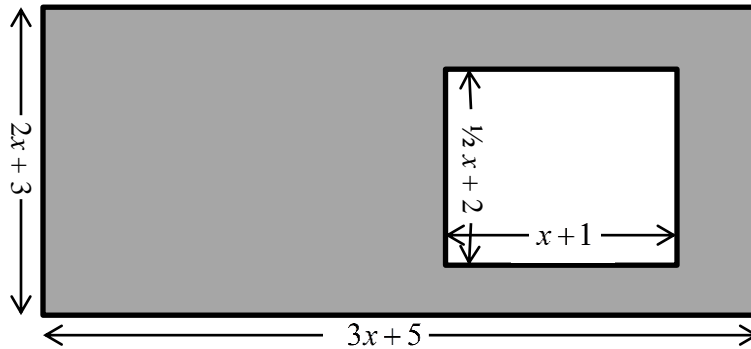
- A. $8x^3 + 108x^2 - 486x - 729$
- B. $8x^3 - 108x^2 - 162x - 729$
- C. $8x^3 - 729$
- D. $8x^3 - 36x^2 + 162x - 729$
- E. $8x^3 - 108x^2 + 486x - 729$

- 6) Which statement(s) is(are) true?

- I $(2h-5k)(2h+5k) = 4h^2 - 25k^2$
- II $(9p-4)^2 = 81p^2 - 16$
- III $-3x(5x^2 - 7x - 2) = -15x^3 + 21x^2 + 6x$

- A. I only
- B. I and III only
- C. I, II, and III
- D. III only
- E. II and III only

- 7) Which polynomial would represent the area of the gray area shaded below?



- A. Area = $\frac{11}{2}x^2 + \frac{33}{2}x + 13$
 B. Area = $\frac{11}{2}x^2 + \frac{43}{2}x + 13$
 C. Area = $\frac{11}{2}x^2 + \frac{33}{2}x + 17$
 D. Area = $\frac{11}{2}x^2 + \frac{43}{2}x + 17$
 E. Area = $\frac{11}{2}x^2 + 19x + 13$

- 8) Solve this equation, then select the correct choice that describes the solution.

$$\frac{x}{3} + \frac{2x-1}{4} = \frac{x+1}{12}$$

- A. x is less than -2 .
 B. x is at least -2 , but less than 0 .
 C. x is at least 0 , but less than 1 .
 D. x is at least 1 , but less than 2 .
 E. x is 2 or greater.

- 9) Solve this equation. $\frac{2}{x-5} + \frac{3}{2x+1} = \frac{22}{2x^2-9x-5}$

- A. $x = \frac{39}{7}$
 B. $x = -5$
 C. $x = 5$
 D. No solution
 E. $x = -\frac{13}{15}$

- 10) Charles can wash a car in 30 minutes working alone. Troy can do the same washing job in 45 minutes working alone. How long after Charles starts to wash the car will it be finished if Troy joins him 5 minutes later?

A. 5 minutes
B. 10 minutes
C. 15 minutes
D. 20 minutes
E. 25 minutes

- 11) A chemist needs 2 liters of a solution that is 35% hydrochloric acid. She has 20% and 60% hydrochloric acid solutions available. If x represents the amount of 20% solution she uses, which equation could be used to solve for x ?

A. $0.2x + 0.6x = 0.35(2)$
B. $0.2x + 0.6(2 - x) = 2$
C. $0.2x + 0.6(x - 2) = 0.35(2)$
D. $0.2x + 0.6(2 - x) = 0.35(2)$
E. $0.2x + 0.6(2) = 0.35x$

- 12) Use the correct order of operations to evaluate this expression.

$$\frac{4|2-8|-(3-4)^3}{45-2(5^2)}$$

A. $-\frac{5}{11}$
B. $\frac{23}{5}$
C. 1
D. -5
E. $-\frac{23}{5}$

- 13) Lois and Clark are covering separate stories for the Daily Planet and they have to travel in opposite directions from their building. Lois leaves at 8:00 AM and travels at an average rate of 35 miles per hour. Clark leaves $\frac{1}{4}$ hour **after** Lois and averages 40 miles per hour. How long has Clark been on the road when the two are 140 miles apart? (Assume neither stops and maintains a constant rate.)

	Distance	Rate	Time
LOIS			
CLARK			

- A. 1 hour
 B. $1\frac{1}{2}$ hours
 C. 2 hours
 D. $1\frac{3}{4}$ hours
 E. $1\frac{1}{4}$ hours
- 14) The three angles inside a triangle are represented by the three measurements below. Which statement describes the measure of the largest angle in this triangle? (The sum of the measures of the angles in every triangle is 180 degrees.)

$$(5x-4)^\circ, (3x+1)^\circ, (2x+7)^\circ$$

- A. The largest angle is less than 70 degrees.
 B. The largest angle is at least 70, but less than 80 degrees.
 C. The largest angle is at least 80, but less than 90 degrees.
 D. The largest angle is at least 90, but less than 100 degrees.
 E. The largest angle is at least 100 degrees.
- 15) Solve the equation at the right. What is the solution?

$$\frac{x}{3} + \frac{5x-1}{5} = 2$$

- A. $x = \frac{33}{20}$
 B. $x = \frac{3}{2}$
 C. $x = \frac{27}{20}$
 D. $x = \frac{31}{20}$
 E. None of the above.