

Use this space for computations.

3 If Angelina's weekly allowance is d dollars, which expression represents her allowance, in dollars, for x weeks?

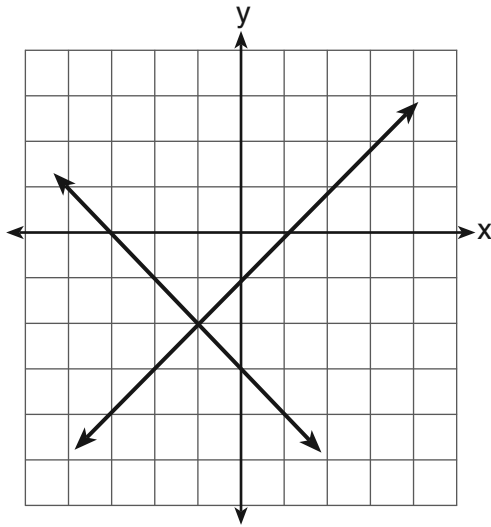
(1) dx

(3) $x + 7d$

(2) $7dx$

(4) $\frac{d}{x}$

4 What is the solution of the system of equations shown in the graph below?



(1) $(1,0)$ and $(-3,0)$

(3) $(-1,-2)$

(2) $(0,-3)$ and $(0,-1)$

(4) $(-2,-1)$

5 The solution of the equation $5 - 2x = -4x - 7$ is

(1) 1

(3) -2

(2) 2

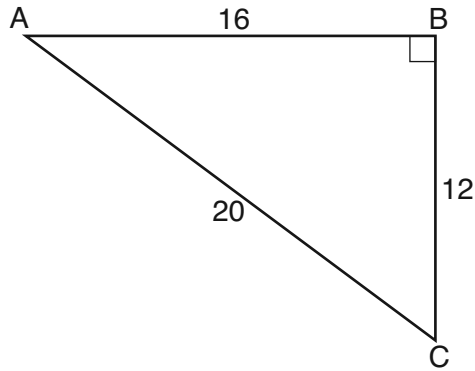
(4) -6

Use this space for computations.

6 The expression $100n^2 - 1$ is equivalent to

- (1) $(10n + 1)(10n - 1)$ (3) $(50n + 1)(50n - 1)$
(2) $(10n - 1)(10n - 1)$ (4) $(50n - 1)(50n - 1)$

7 In right triangle ABC shown below, what is the value of $\cos A$?



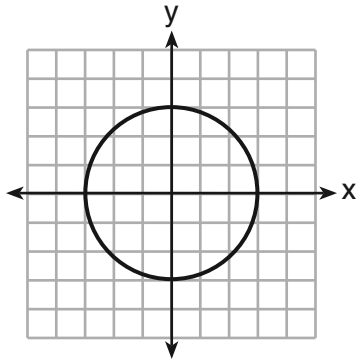
- (1) $\frac{12}{20}$ (3) $\frac{20}{12}$
(2) $\frac{16}{20}$ (4) $\frac{20}{16}$

8 A bag contains five green gumdrops and six red gumdrops. If Kim pulls a green gumdrop out of the bag and eats it, what is the probability that the next gumdrop she pulls out will be red?

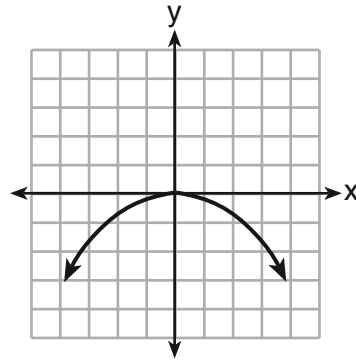
- (1) $\frac{5}{11}$ (3) $\frac{6}{11}$
(2) $\frac{5}{10}$ (4) $\frac{6}{10}$

Use this space for computations.

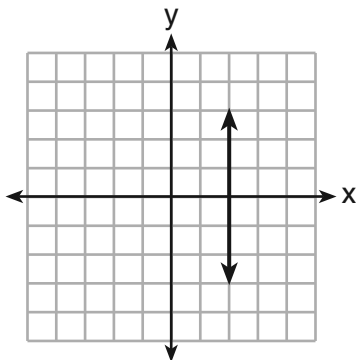
9 Which graph represents a function?



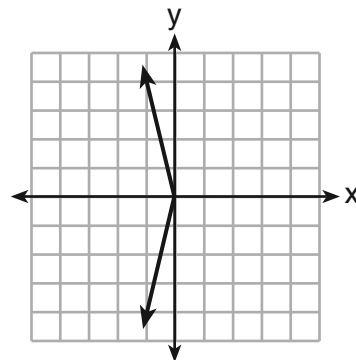
(1)



(3)



(2)



(4)

10 The current population of a town is 10,000. If the population, P , increases by 20% each year, which equation could be used to find the population after t years?

(1) $P = 10,000(0.2)^t$

(3) $P = 10,000(1.2)^t$

(2) $P = 10,000(0.8)^t$

(4) $P = 10,000(1.8)^t$

**Use this space for
computations.**

11 Which verbal expression is represented by $2(x + 4)$?

- (1) twice the sum of a number and four
- (2) the sum of two times a number and four
- (3) two times the difference of a number and four
- (4) twice the product of a number and four

12 How many cubes with 5-inch sides will completely fill a cube that is 10 inches on a side?

- (1) 50
- (2) 25
- (3) 8
- (4) 4

13 A school newspaper will survey students about the quality of the school's lunch program. Which method will create the *least* biased results?

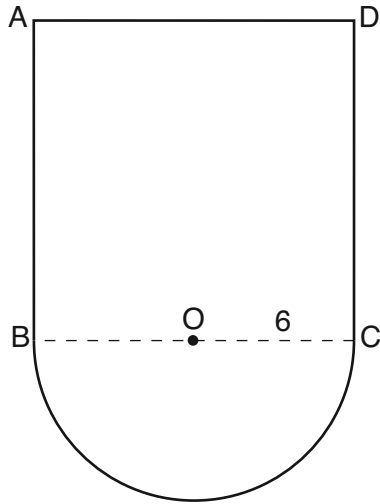
- (1) Twenty-five vegetarians are randomly surveyed.
- (2) Twenty-five students are randomly chosen from each grade level.
- (3) Students who dislike the school's lunch program are chosen to complete the survey.
- (4) A booth is set up in the cafeteria for the students to voluntarily complete the survey.

14 The vertex of the parabola $y = x^2 + 8x + 10$ lies in Quadrant

- (1) I
- (2) II
- (3) III
- (4) IV

Use this space for computations.

- 15 In the figure below, $ABCD$ is a square and semicircle O has a radius of 6.



What is the area of the figure?

- (1) $36 + 6\pi$ (3) $144 + 18\pi$
(2) $36 + 18\pi$ (4) $144 + 36\pi$
- 16 What is $24x^2y^6 - 16x^6y^2 + 4xy^2$ divided by $4xy^2$?
- (1) $6xy^4 - 4x^5$ (3) $6x^2y^3 - 4x^6y$
(2) $6xy^4 - 4x^5 + 1$ (4) $6x^2y^3 - 4x^6y + 1$

- 17 Which expression can be used to change 75 kilometers per hour to meters per minute?

- (1) $\frac{75 \text{ km}}{1 \text{ hr}} \times \frac{1 \text{ km}}{1,000 \text{ m}} \times \frac{1 \text{ hr}}{60 \text{ min}}$
(2) $\frac{75 \text{ km}}{1 \text{ hr}} \times \frac{1 \text{ km}}{1,000 \text{ m}} \times \frac{60 \text{ min}}{1 \text{ hr}}$
(3) $\frac{75 \text{ km}}{1 \text{ hr}} \times \frac{1,000 \text{ m}}{1 \text{ km}} \times \frac{1 \text{ hr}}{60 \text{ min}}$
(4) $\frac{75 \text{ km}}{1 \text{ hr}} \times \frac{1,000 \text{ m}}{1 \text{ km}} \times \frac{60 \text{ min}}{1 \text{ hr}}$

Use this space for
computations.

23 Which ordered pair is in the solution set of the system of inequalities $y \leq 3x + 1$ and $x - y > 1$?

- (1) $(-1, -2)$ (3) $(1, 2)$
(2) $(2, -1)$ (4) $(-1, 2)$

24 Which equation represents the line that passes through the point $(-3, 4)$ and is parallel to the x -axis?

- (1) $x = 4$ (3) $y = 4$
(2) $x = -3$ (4) $y = -3$

25 A cube with faces numbered 1 through 6 is rolled 75 times, and the results are given in the table below.

Number	Frequency
1	7
2	22
3	14
4	6
5	20
6	6

Based on these results, which statement is true?

- (1) $P(\text{odd}) < P(\text{even})$ (3) $P(\text{even}) < P(2 \text{ or } 4)$
(2) $P(3 \text{ or less}) < P(\text{odd})$ (4) $P(2 \text{ or } 4) < P(3 \text{ or less})$

26 Given:

$$A = \{\text{perfect square integers from 4 to 100, inclusive}\}$$
$$B = \{16, 36, 49, 64\}$$

The complement of set B in the universal set A is

- (1) $\{9, 25, 81\}$ (3) $\{1, 4, 9, 25, 81, 100\}$
(2) $\{4, 9, 25, 81, 100\}$ (4) $\{4, 16, 36, 49, 64, 100\}$

Use this space for
computations.

27 The expression $\frac{2x^2 + 10x - 28}{4x + 28}$ is equivalent to

(1) $\frac{x - 2}{2}$

(3) $\frac{x + 2}{2}$

(2) $x - 1$

(4) $\frac{x + 5}{2}$

28 Which value of x is the solution of the equation $\frac{1}{7} + \frac{2x}{3} = \frac{15x - 3}{21}$?

(1) 6

(3) $\frac{4}{13}$

(2) 0

(4) $\frac{6}{29}$

29 Which statement is true about the data set 4, 5, 6, 6, 7, 9, 12?

(1) mean = mode

(3) mean < median

(2) mode = median

(4) mode > mean

30 How is the graph of $y = x^2 + 4x + 3$ affected when the coefficient of x^2 is changed to a smaller positive number?

(1) The graph becomes wider, and the y -intercept changes.

(2) The graph becomes wider, and the y -intercept stays the same.

(3) The graph becomes narrower, and the y -intercept changes.

(4) The graph becomes narrower, and the y -intercept stays the same.

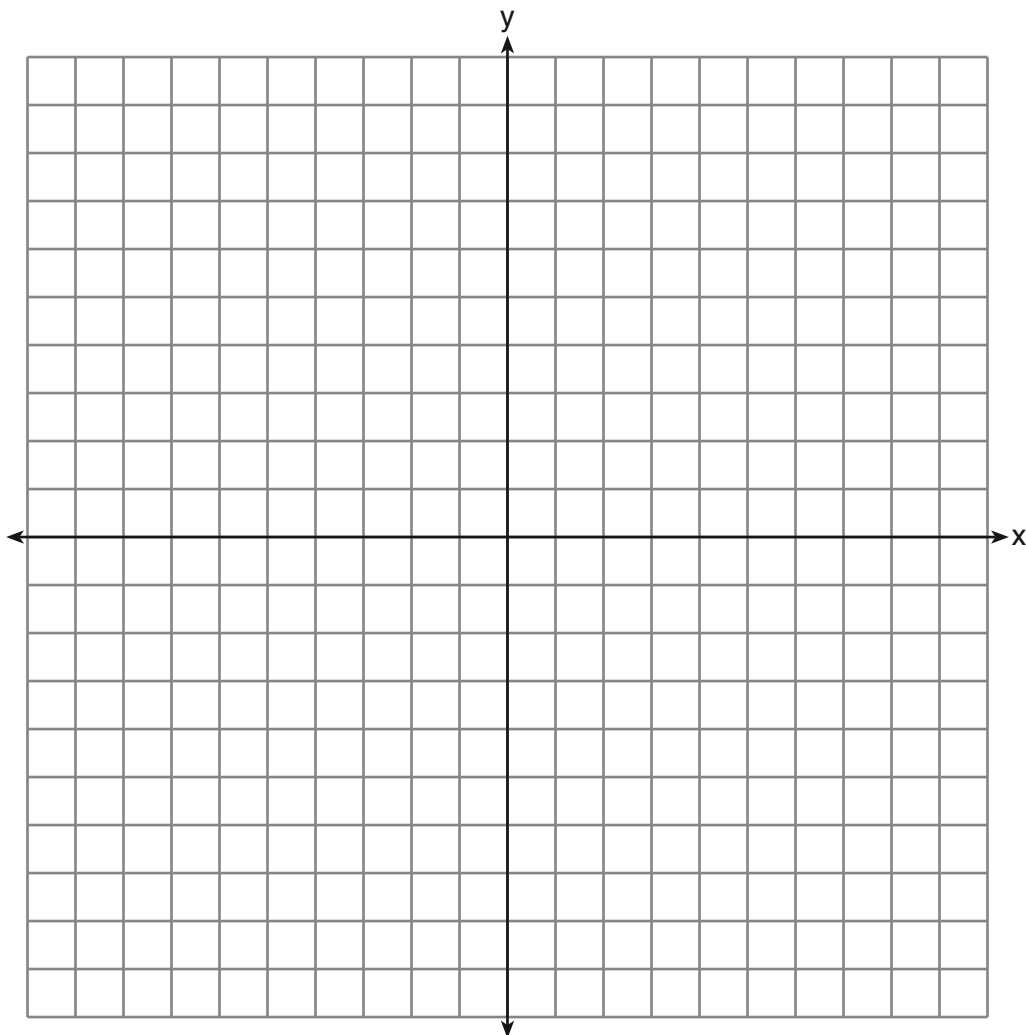
Part II

Answer all 3 questions in this part. Each correct answer will receive 2 credits. Clearly indicate the necessary steps, including appropriate formula substitutions, diagrams, graphs, charts, etc. For all questions in this part, a correct numerical answer with no work shown will receive only 1 credit. All answers should be written in pen, except for graphs and drawings, which should be done in pencil. [6]

31 Express $4\sqrt{75}$ in simplest radical form.

32 Factor completely: $5x^3 - 20x^2 - 60x$

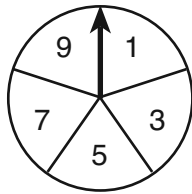
33 On the set of axes below, graph $y = 2|x + 3|$. Include the interval $-7 \leq x \leq 1$.



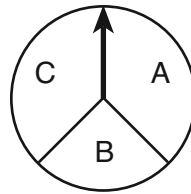
Part III

Answer all 3 questions in this part. Each correct answer will receive 3 credits. Clearly indicate the necessary steps, including appropriate formula substitutions, diagrams, graphs, charts, etc. For all questions in this part, a correct numerical answer with no work shown will receive only 1 credit. All answers should be written in pen, except for graphs and drawings, which should be done in pencil. [9]

34 In a game, a player must spin each spinner shown in the diagram below once.



Spinner 1



Spinner 2

Draw a tree diagram or list a sample space showing all possible outcomes.

Determine the number of outcomes that consist of a prime number and a letter in the word "CAT."

35 The cost of three notebooks and four pencils is \$8.50. The cost of five notebooks and eight pencils is \$14.50. Determine the cost of one notebook and the cost of one pencil.

[Only an algebraic solution can receive full credit.]

36 Wendy measures the floor in her rectangular bedroom for new carpeting. Her measurements are 24 feet by 14 feet. The actual measurements are 24.2 feet by 14.1 feet.

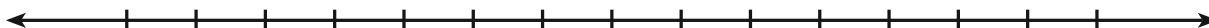
Determine the relative error in calculating the area of her bedroom. Express your answer as a decimal to the *nearest thousandth*.

Part IV

Answer all 3 questions in this part. Each correct answer will receive 4 credits. Clearly indicate the necessary steps, including appropriate formula substitutions, diagrams, graphs, charts, etc. For all questions in this part, a correct numerical answer with no work shown will receive only 1 credit. All answers should be written in pen, except for graphs and drawings, which should be done in pencil. [12]

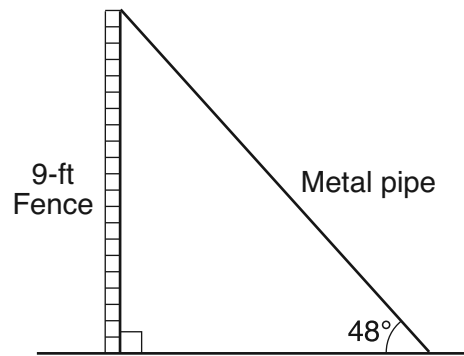
37 Using the line provided, construct a box-and-whisker plot for the 12 scores below.

26, 32, 19, 65, 57, 16, 28, 42, 40, 21, 38, 10



Determine the number of scores that lie above the 75th percentile.

38 A metal pipe is used to hold up a 9-foot fence, as shown in the diagram below. The pipe makes an angle of 48° with the ground.



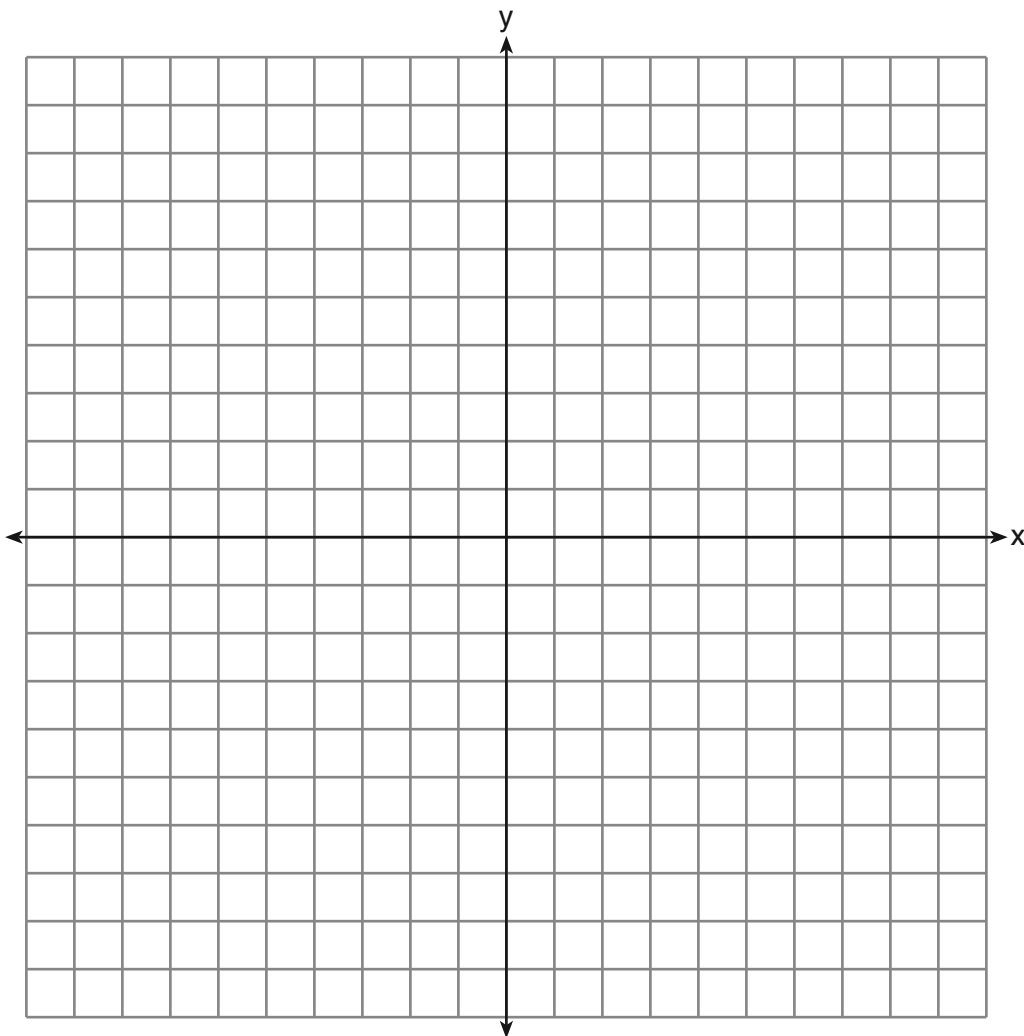
Determine, to the *nearest foot*, how far the bottom of the pipe is from the base of the fence.

Determine, to the *nearest foot*, the length of the metal pipe.

39 On the set of axes below, graph the following system of equations.

$$\begin{aligned}y + 2x &= x^2 + 4 \\ y - x &= 4\end{aligned}$$

Using the graph, determine and state the coordinates of *all* points in the solution set for the system of equations.



If the student’s responses for the multiple-choice questions are being hand scored prior to being scanned, the scorer must be careful not to make any marks on the answer sheet except to record the scores in the designated score boxes. Marks elsewhere on the answer sheet will interfere with the accuracy of the scanning.

Part I

Allow a total of 60 credits, 2 credits for each of the following.

(1) 1	(11) 1	(21) 2
(2) 2	(12) 3	(22) 1
(3) 1	(13) 2	(23) 2
(4) 3	(14) 3	(24) 3
(5) 4	(15) 3	(25) 4
(6) 1	(16) 2	(26) 2
(7) 2	(17) 3	(27) 1
(8) 4	(18) 4	(28) 1
(9) 3	(19) 3	(29) 2
(10) 3	(20) 4	(30) 2

Updated information regarding the rating of this examination may be posted on the New York State Education Department’s web site during the rating period. Check this web site at: <http://www.p12.nysed.gov/assessment/> and select the link “Scoring Information” for any recently posted information regarding this examination. This site should be checked before the rating process for this examination begins and several times throughout the Regents Examination period.

Beginning in January 2013, the Department is providing supplemental scoring guidance, the “Sample Response Set,” for the Regents Examination in Integrated Algebra. This guidance is not required as part of the scorer training. It is at the school’s discretion to incorporate it into the scorer training or to use it as supplemental information during scoring. While not reflective of all scenarios, the sample student responses selected for the Sample Response Set illustrate how less common student responses to open-ended questions may be scored. The Sample Response Set will be available on the Department’s web site at <http://www.p12.nysed.gov/assessment/scoring/home-hs.html>.