1. What is the additive inverse of $-5a$?

2. Solve for n: $|n - 4 = 5$

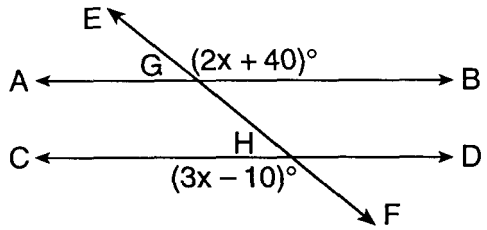
3. If $x - 3$, $y = 4$, and $z = -2$, what is the value of $\frac{x^2y}{z}$

4. What is the value of n if $3.56 \times 10^n = 35{,}600$?

5. Stephanie has six blouses, four skirts, and three sweaters in her closet. What is the total number of different outfits that she can select consisting of one blouse, one skirt, and one sweater?

6. Solve for x: $7x + 3 = 4x - 9$

7. In the accompanying diagram, transversal $\overleftrightarrow{EF}$ intersects parallel lines $\overleftrightarrow{AB}$ and $\overleftrightarrow{CD}$ at G and H, respectively. If $m\angle EGB = 2x + 40$ and $m\angle FHC = 3x - 10$, what is the value of x?



8. If the probability that Geraldo will be elected president of the senior class is 0.8, what is the probability that Geraldo will *not* be elected president of the senior class?

9. If the mean of the numbers 9, 10, 11, 12, and x is 13, what is the value of x?

10. Solve for m: $0.04m - 1.6 = -0.8$

11. What is the product of $-2x^2y^3$ and $5x^3y$?

12. If 8 ounces of a sports drink contains 110 milligrams of sodium, what is the total number of milligrams of sodium in 20 ounces of the sports drink?

13. Solve the following system of equations for x:
$$2x + y = 2$$
$$x - y = 7$$

14. If $(k,3)$ is a point on the line whose equation is $4x + y = -9$, what is the value of k?

15. The measures of two complementary angles are in the ratio 5:1. What is the measure, in degrees, of the smaller angle?

16. When $18x^4 - 12x^3 + 6x^2$ is divided by $6x^2$, the quotient is
(1) $3x^2 - 2x + 1$ (3) $18x^4 - 12x^3 + 1$
(2) $12x^2 - 6x + 1$ (4) $3x^2 - 12x^3 + 6x^2$

17. The probability that a red block is selected from a bucket is 3/8, and the probability that a blue block is selected is 2/8. What is the probability that a red block or a blue block is selected?
(1) 1 (3) $\frac{5}{8}$
(2) $\frac{1}{2}$ (4) $\frac{6}{8}$

18. What is the volume of a rectangular solid with a length of 12, a width of 3, and a height of 4?
(1) 12 (3) 84
(2) 19 (4) 144

19. Which shape is *not* a parallelogram?
(1) rhombus (3) trapezoid
(2) square (4) rectangle

20. The statement "n is even and a perfect square" is true when n equals
(1) 1 (3) 25
(2) 18 (4) 4

21. The enlargement of a photograph is an example of a
(1) line reflection (3) translation
(2) dilation (4) rotation

22. A garden is planted in the shape of a regular pentagon. If the garden is enclosed with 30 feet of fence, what is the number of feet in each side of the garden?
(1) 5 (3) 3
(2) 6 (4) 10

23. When solved for y, the equation $ay - b = c$ is equal to
(1) $\frac{c - b}{a}$ (3) $\frac{c + b}{y}$
(2) $\frac{c + a}{b}$ (4) $\frac{c + b}{a}$

24. If 25% of a number is equal to $6x$, then the number is
(1) $2.4x$ (3) $1.5x$
(2) $24x$ (4) $15x$

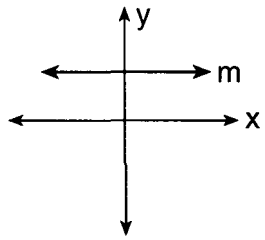
25. The greatest common factor of $12x^2y^3$ and $24xy^2$ is
(1) $6xy$ (3) $12xy^2$
(2) $24xy^2$ (4) $2xy$

26. The converse of $\sim q \rightarrow \sim p$ is
(1) $\sim p \rightarrow \sim q$ (3) $q \rightarrow p$
(2) $p \rightarrow q$ (4) $p \rightarrow \sim q$

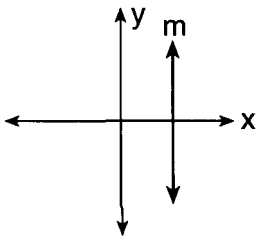
27. What is the quotient of $6 \overline{)48}$ expressed in simplest form?
$3 \overline{)3}$
(1) 32 (3) 8
(2) 12 (4) 4

28. In which graph does line *m* have a slope of 0

(1)



(2)



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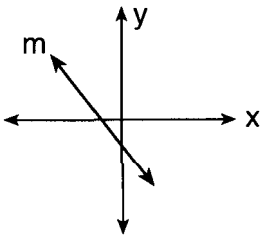

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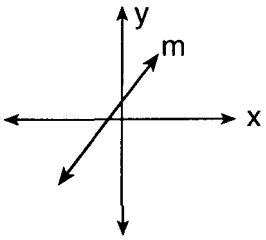


29. Which equation illustrates the distributive property?

(1) $p(g + r) = pg + pr$ (3) $pg = gp$

(2) $(p + g) + r = p + (g + r)$ (4) $p + 0 = p$

30. If $\frac{5!}{6!} = \frac{1}{n+1}$, what is the value of n?

(1) 0 (3) $\frac{1}{6}$

(2) $\frac{1}{5}$ (4) 5

31. Written in factored form, the trinomial $2x^2 - 3x - 5$ is equivalent to

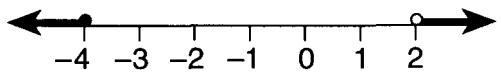
(1) $(2x - 1)(x + 5)$ (3) $(2x - 5)(x + 1)$

(2) $(2x + 5)(x - 1)$ (4) $(2x + 1)(x - 5)$

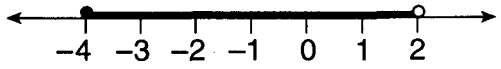
32. Construct a truth table for $\sim(p \wedge q) \vee (q \rightarrow \sim p)$.

33. Which graph represents the solution set of the inequality $-4 \leq x < 2$?

(1)



(2)



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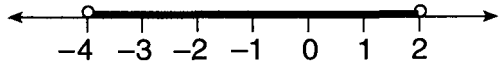
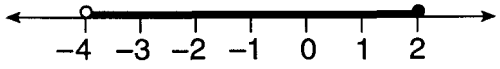


(4)



34. Triangle *ABC* has coordinates *A*(–3,0), *B*(0,3), and *C*(3,0). The number of square units in the area of $\triangle ABC$ is

(1) 6 (3) 12

(2) 9 (4) 18

35. The expression $\frac{x+3}{2x-2}$ is undefined when x is equal to

(1) 1 (3) –3

(2) 0 (4) –1

36. What is the greatest number of different two-letter arrangements that can be formed from the letters **S**, **P**, **R**, **I**, **N**, and **G**, if each letter is used only once in an arrangement?

(1) 720 (3) 12

(2) 30 (4) 6

37. *a* On the same set of coordinate axes, graph the following system of inequalities:

$$y \geq -3x + 1$$
$$2y - 4x < 6$$

b Write the coordinates of a point in the solution set of the inequalities graphed in part *a*.

38. Jennifer's Bakery sold half as many marble cakes as strawberry shortcakes. The price of a marble cake is $6 and the price of a strawberry shortcake is $8.50. If the total amount of sales for these cakes was $391, what was the total number of each kind of cake that was sold?

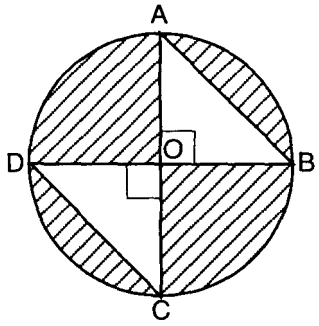
39. What is the largest of three consecutive odd integers if the product of the first and third integers is 6 more than three times the second integer? Explain.

40. The distribution of math scores for 25 students on a test was 92, 87, 60, 76, 90, 83, 99, 55, 82, 76, 90, 71, 88, 94, 87, 75, 94, 87, 98, 62, 80, 97, 86, 78, and 65.

Test Score	Tally	Frequency
53–58		
59–64		
65–70		
71–76		
77–82		
83–88		
89–94		
95–100		

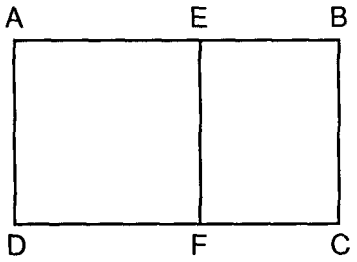
a Complete the frequency table for these scores.
b If a score of at least 65 represents a passing grade, what is the probability that a student chosen at random passed the test?
c Which interval contains the upper quartile?
d What is the total number of students who scored in the interval containing the median?

41. In the accompanying diagram, right triangles *AOB* and *COD* are inscribed in circle *O*, which has a diameter of 10. Diameters DB and AC are drawn.



a Express the area of circle *O* in terms of p.
b Find the area of (AOB
c Find the area of (*COD*.
d Express the area of the shaded region in terms of p.
e Find *AB* to the *nearest tenth*.

42. In the accompanying diagram, square *ADFE* is inscribed in rectangle *ABCD*, *EB*:*AB* = 3:7, and the perimeter of *ABCD* is 132.



Find:
a the length of AE
b the area of rectangle *ABCD*
c the ratio of the area of rectangle *EBCF* to the area of rectangle *ABCD*, in simplest form

Answer Key

1. $5a$

2. 6

3. –18

4. 4

5. 72

6. –4

7. 50

8. 0.2

9. 23

10. 20

11. $-10x^5y^4$

12. 275

13. 3

14. –3

15. 15

16. 1

17. 3

18. 4

19. 3

20. 4

21. 3

22. 2

23. 4

24. 2

25. 3

26. 1

27. 3

28. 1

29. 1

30. 4

31. 3

32. Essay

33. 2

34. 2

35. 1

36. 2

37. Essay

38. 17 marble cakes
34 strawberry shortcakes

39. Analysis and 7

40. *b* $\frac{22}{25}$
c 89 – 94
d 6

41. *a* 25p
b 12.5
c 12.5
d 25p – 25
e 7.1

42. *a* 24
b 1,008
c 3:7

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Math 1 Sample Exam

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