Sample Test Questions Part 1

Rational Numbers

1. $\frac{8}{15} \div \frac{2}{5}$

2. $1\frac{5}{6} + 3\frac{4}{15}$

Percent

3. 42 is 30 % of what number?

4. The Smiths spend 23% of their monthly income on food. Their income in May was $5400. How much did they spend on food in May?

5. Emily bought a dress for $60 that originally sold for $75. What rate of discount did she receive?

Integers

6. $6 \cdot 3^2$

7. $9 + 4(1-5) + 6$

8. $\frac{(-3)^2 + 5 \cdot 6}{-7+4}$

9. $7 - |3 - 10|$

Algebraic Expressions

10. Write an expression that represents “thirteen less than one third of x”.

11. Write an expression that represents “forty-two more than half of y”.

12. Evaluate $5x^2 - 3xy + 2y^2$ for $x = 2$ and $y = -3$.

Algebraic Equations

13. If $9 - 4(7x - 6) = 4x + 27$, then what is the value of x?

14. Solve for x: $-5(3 - 2x) = x + 12$

Inequalities

15. Which expression is equivalent to 4(2x – 9) < 11x – 6?

a) $x < -10$

b) $x > -10$

c) $x > 10$

d) $x < 10$

Formulas

16. Solve $A = \frac{1}{2}bh$ for *h*.

17. Solve $P = 2(l + w)$ for w.

Slope of a Line

18. What is the y-intercept of the line $4x+5y=20$?

19. What is the y-intercept of the line $-2x=-3y+15$?

20. What is the slope of the line passing through the points $(5,-3)$ and $(-2,\ 6)$?

21. What is the slope of the line $8x+2y=16$

Graphing Linear Equations

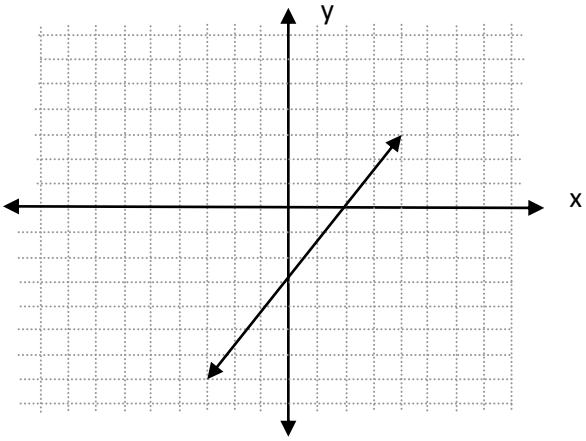
22. The graph represents the solution set of which of the following equations:

a) $2x-3y=0$

b) $y=\frac{3}{2}x-3$

c) $y=\frac{2}{3}x+2$

d) $x=-\frac{2}{3}y-3$



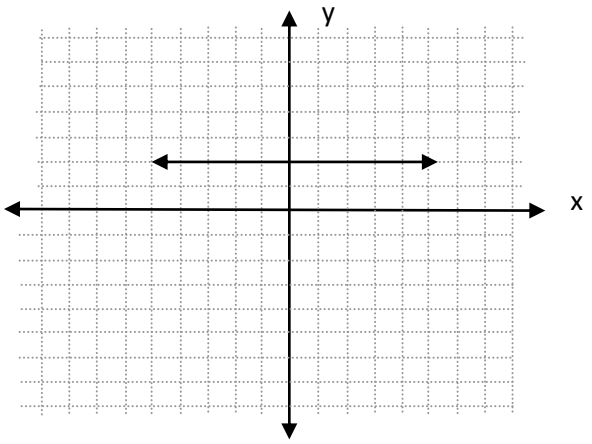
23. The graph represents the solution set of which of the following equations:

a) x = – 2

b) y = – 2

c) y = 2

d) x = 2



Polynomials

24. Simplify: $(6x^3y^2)^2$

25. Simplify: $(-7xy^2)(-3x^4y^5)$

26. Simplify: $\left(2a^4bc^5\right)^3$

27. Simplify: $\dfrac{x^{-3}y^4}{x^2y^{-6}}$

28. Simplify: $5y(3x-4y)$

29. Simplify: $\dfrac{x^2y^{-7}z^{-10}}{x^2y^{-5}z}$

30. Multiply: $(2x+3)^2$

31. Divide: $\dfrac{20xy+10x^2y^3-35x^4y}{5xy}$

32. Simplify: $(6x-3y+2)-(-3x-8y+12)$

33. Factor: $49y^2-100$

34. Factor: $-25+4x^2$

35. Factor completely: $x^2+4y-xy-4x$

36. Find one of the factors of $8x^2+2x-15$

37. Find the solutions of $x^2-6x-27=0$

38. Solve for x: $x^2-x-56=0$

Algebraic Fractions

39. Simplify: $\dfrac{x^2-2x-48}{2x-3}\bullet\dfrac{4x^2-9}{x+6}$

40. Simplify: $\dfrac{9x-36}{x^2+10x+21}\bullet\dfrac{x^2-49}{x-4}$