

December 7, 2008

Your Name: _____

Instructor's Name: _____

Signature: _____

Circle the **time** your class meets:

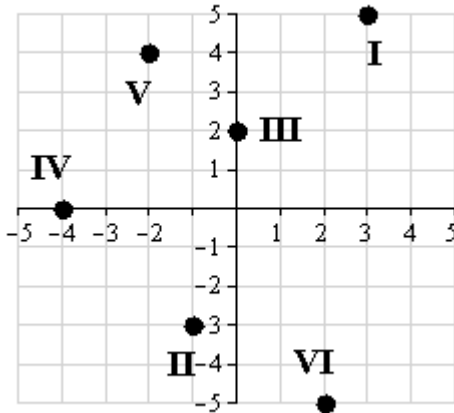
OSU email: _____@osu.edu

7:30a.m. 8:30 9:30 10:30 11:30 12:30 1:30 2:30 3:30 4:30 7:30p.m.

Directions: You have 110 minutes to complete this exam. There are 35 questions. Each multiple choice question is worth 5 points, each of the other questions is worth 6 points. (There is no partial credit on multiple choice questions or questions 12, 16, 24 and 25). Partial credit is rare, but possible; so please show your work. Write your answers clearly, and use the space provided for the answer!

For problems 1 - 10, write the **letter** of the correct answer in the space provided. Only one answer is correct.

___ 1. Find the coordinates of the point labeled **II**.



- A) $(-4, 0)$ B) $(2, -5)$ C) $(-2, 4)$ D) $(-1, -3)$ E) $(0, 2)$

___ 2. Simplify: $(5n^{-3}y^{-5})^2$.

- A) $\frac{5}{n^6 y^{10}}$ B) $25n^6 y^{10}$ C) $\frac{25}{n^6 y^5}$ D) $\frac{25}{n^6 y^{10}}$ E) $\frac{25n^6}{y^{10}}$

___ 3. Find the greatest common factor.

$$10pq, 8p^3q^4, 12q^3$$

- A) $240p^3q^4$ B) $12p^3q^4$ C) $2q$ D) $240p^4q^8$ E) $2p^3q^4$

___ 4. Simplify.

$$\frac{1}{6} - \frac{11}{12} - \frac{1}{2}$$

- A) $-\frac{5}{4}$ B) $-\frac{19}{36}$ C) $-\frac{7}{36}$ D) $-\frac{1}{4}$ E) $-\frac{19}{12}$

___ 5. Find the supplement of a 128° angle.

- A) 128° B) 20° C) -38° D) 38° E) 52°

___ 6. Find the slope of the line containing the given points.

$$P_1(2,9), P_2(3,12)$$

- A) $-\frac{1}{3}$ B) $\frac{3}{5}$ C) 3 D) Undefined E) -3

___ 7. Subtract.

$$(-7t^2 - 6t) - (-7t^2 - 2t)$$

- A) $-14t^2 - 4t$ B) $-7t^2 - 4t$ C) $-8t$ D) $-4t$ E) $-14t^2 - 8t$

___ 8. Factor: $t(t-5) + y(5-t)$.

- A) $(t+5)(t-y)$ B) $(t-5)(y-t)$ C) $(t+5)(t+y)$ D) $(t-5)(t-y)$ E) $(t-5)(t+y)$

___ 9. Factor: $10b^2 - 40$.

- A) $10(b+2)^2$ D) $10(b-2)^2$
B) $10(b+2)(b-2)$ E) $10(2+b)(2-b)$
C) Nonfactorable over the integers

___ 10. **Geometry.** The radius of a circle is $(3x+4)$ cm.

Find the area of the circle in terms of the variable x . Leave the answer in terms of π .

- A) $9\pi x^2 + 24\pi x + 16\pi \text{ cm}^2$
B) $9\pi x^2 + 12\pi x + 8\pi \text{ cm}$
C) $9\pi x^2 + 24x + 8\pi \text{ cm}^2$
D) $9\pi x^2 + 12\pi x + 16\pi \text{ cm}^2$
E) $9\pi x^2 + 16\pi \text{ cm}^2$

11. Factor: $s^2 - 9sr + 18r^2$.

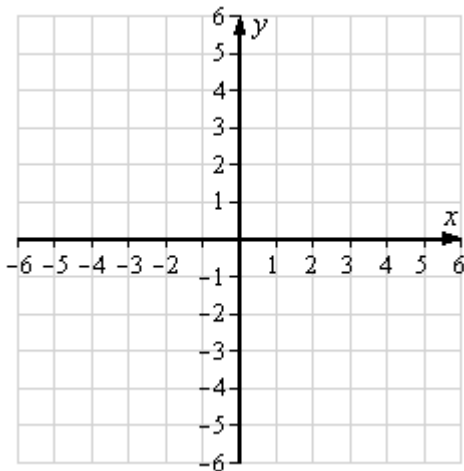
12. **Number Sense.** Three-fourths of a number is greater than two-fifths.

Find the smallest integer that satisfies this inequality.

13. The perimeter of a triangle is 66 m. One side is two times the second side. The third side is 6 m more than the second side. Find the length of each side.

14. Graph by using x - and y -intercepts.

$$3x + 5y = 15$$



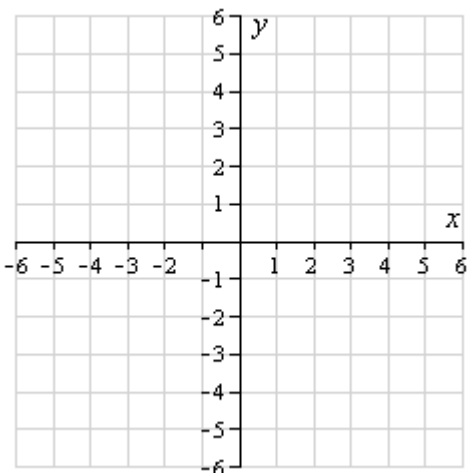
15. Solve: $8z - \frac{1}{7} \leq 7z + \frac{1}{5}$.

16. Write the following problem as an equation and solve.
The product of 6 and a number is 18.

17. A bank contains 24 coins in dimes and quarters. The coins have a total value of \$4.20. Find the number of dimes and quarters in the bank.

18. Graph. Label at least two points on the graph.

$$y = -\frac{3}{2}x - 1$$



19. Solve.

$$-7z + 3 = 4(-4z + 4) - 13$$

20. Find the equation of the line that contains the point (21, 13) and has slope $\frac{3}{7}$.

21. Factor by grouping: $6b^2 + 29b + 28$.

22. Find the equation of the line that passes through the points (1, 2) and (4, -4).

23. Factor: $27a^2 + 6az - 63a - 14z$.

24. Evaluate the following expression using the Order of Operations Agreement.

$$-14^2 + 4[8 \div (18 - 16)]$$

25. Compute: $|1 - (-12) - 31 - 12|$.

26. Three times the first of two consecutive odd integers equals five times the second. Find the integers.

27. Write the mass of Venus, which is approximately 4,870,000,000,000,000,000,000 kg, in scientific notation.

28. Factor: $5y^2 - 40y + 75$.

29. A stock analyst deposited a total of \$80,000 in two simple interest accounts. The annual simple interest rate on one account is 5%. The annual simple interest rate on the second account is 13%. How much was invested in each account if the total annual interest earned is 7% of the total investment?

30. Solve for y . Write the equation in the form $y = mx + b$.
 $4x - 3y = 3$

31. A set of 4 radial tires for a luxury sport sedan is on sale for \$174 after a markdown of 40%. Find the regular price of the set of tires.

32. Toolshed Co rents small tools (such as drills, wood sanders) at a rate of \$18 a day. Each piece of consumables (such as sandpaper) is charged at \$1.6 per piece. For a project, you rented a drill for 9 days and needed 25 bits for it. Find the total cost of renting the drill.

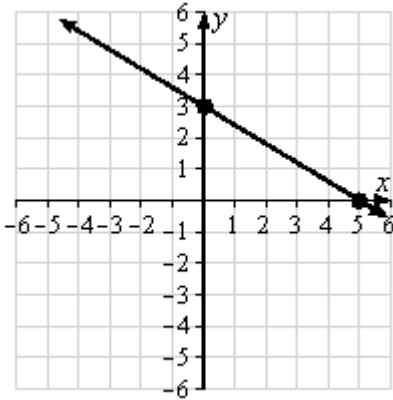
33. Two professional runners start from the same point at the same time and move in opposite directions. One runner is running at 4 mph, and the other runner is running at 5 mph. After 30 min, how many miles apart are the two runners?

34. Multiply: $(g - 8h)(2g + 7h)$.

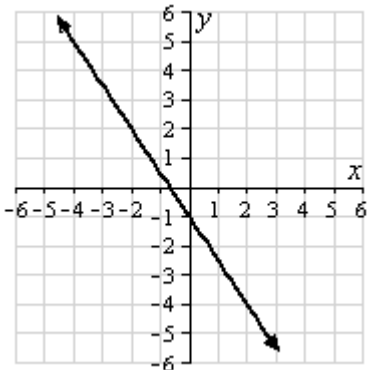
35. Divide: $(2t^2 - 4t - 10) \div (t - 4)$.

Answer Key

1. D
2. D
3. C
4. A
5. E
6. C
7. D
8. D
9. B
10. A
11. $(s-6r)(s-3r)$
12. 1
13. 30 m, 15 m, 21 m
- 14.



15. $z \leq \frac{12}{35}$
16. $6x = 18; 3$
17. 12 dimes; 12 quarters
- 18.



19. 0
20. $y = \frac{3}{7}x + 4$
21. $(2b+7)(3b+4)$
22. $y = -2x + 4$
23. $(9a+2z)(3a-7)$
24. -180

25. 30

26. $-5, -3$

27. 4.87×10^{24}

28. $5(y-5)(y-3)$

29. \$60,000 at 5%; \$20,000 at 13%

30. $y = \frac{4}{3}x - 1$

31. \$290.00

32. \$202.00

33. 4.5 mi

34. $2g^2 - 9gh - 56h^2$

35. $2t + 4 + \frac{6}{t-4}$