**MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.**

**Subtract.**

1) $\frac{9}{11z} - \frac{12}{11z}$ 1) _____

A) $-\frac{3}{11z}$ B) $-\frac{3}{121z}$ C) $1\frac{10}{11z}$ D) $\frac{3}{11z}$

**Add.**

2) $\frac{1}{4} + \frac{5}{16} + \frac{2}{8}$ 2) _____

A) $2\frac{1}{4}$ B) $\frac{1}{2}$ C) $1\frac{5}{8}$ D) $\frac{13}{16}$

**Solve.**

3) $\frac{1}{3}(r + 6) = \frac{1}{6}(r + 8)$ 3) _____

A) 4 B) –4 C) –10 D) 5

**Write the mixed number as an improper fraction.**

4) $3\frac{2}{5}$ 4) _____

A) $\frac{17}{5}$ B) $\frac{15}{5}$ C) $\frac{17}{2}$ D) $\frac{15}{2}$

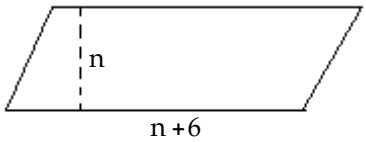
**Find the coordinates of the x– and y– intercepts.**

5) $-5x + 5y = 10$ 5) _____

A) (0, –1) (0, 5) B) (–1, 0) (5, 0) C) (–2, 0) (0, 2) D) (–2, 5) (–1, 10)

**Solve the problem.**

6) Write an expression in simplest form that represents the area of the parallelogram. 6) _____




A) $n^2 + 6n$ B) $2n + 6$ C) $4n + 12$ D) $n^2 + n$

**Multiply and write the product as a mixed number in simplest form.**

7) $2\frac{1}{2} \cdot 3\frac{2}{3}$ 7) _____

A) $6\frac{1}{3}$ B) $7\frac{2}{3}$ C) $7\frac{5}{6}$ D) $9\frac{1}{6}$

**Factor.**

8) $12m^9 + 40m^6 - 12m^4$ 8) _____

A) No common factor
B) $4(3m^9 + 10m^6 - 3m^4)$
C) $m^4(12m^5 + 40m^2 - 12)$
D) $4m^4(3m^5 + 10m^2 - 3)$

**Convert. 1 pint = 2 cup**

9) $5\frac{1}{2}$ pints to cups 9) _____

A) 10 c. B) 20 c. C) 11 c. D) 22 c.

**Write as a fraction or mixed number in lowest terms.**

10) 0.625 10) _____

A) $\frac{5}{9}$ B) $\frac{5}{8}$ C) $\frac{1}{16}$ D) $\frac{5}{16}$

**Simplify using order of operations.**

11) $|-72| \div (-9) \cdot |-7|$ 11) _____

A) 56 B) −56 C) 8 D) −8

**Find the prime factorization. Write the answer in exponential form.**

12) 231 12) _____

A) $21 \cdot 11$ B) $3^2 \cdot 11$ C) $7^2 \cdot 3$ D) $3 \cdot 7 \cdot 11$

**Solve.**

13) What percent of 50 is 17? 13) _____

A) 17% B) 34% C) 60% D) 120%

**Translate to an equation.**

14) Forty−five decreased by the product of three and y is the same as twice the difference of y and thirty−five. 14) _____

A) $45 - 3y = 2(35 + y)$
B) $45 - 3y = 2(y - 35)$
C) $3y - 45 = 2(y - 35)$
D) $45 - (3 + y) = 2y - 35$

**Subtract and write the resulting polynomial in descending order of degree.**

15) $(8p^2 + 14p + 7) - (15p^2 + 16p - 6)$ 15) _____

A) $-7p^2 - 2p + 13$
B) $-7p^2 - 2p + 1$
C) $-7p^4 - 2p^2 + 13$
D) $-7p^2 + 2p - 13$

**Solve for the missing number.**

16) $\frac{1}{2} = \frac{x}{11}$ 16) _____

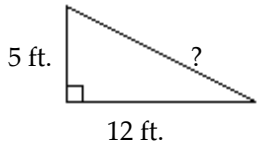
A) 22 B) 5.5 C) 0.05 D) 11

**Solve.**

17) $\frac{16}{15}x = -\frac{16}{27}$ 17) _____

A) $-\frac{5}{9}$ B) $-5$ C) $-\frac{4}{5}$ D) $-\frac{5}{4}$

18) The diagram below shows the side view of a plan for a slanted roof. Find the unknown length in this roof plan. 18) _____




A) 25 ft. B) 7 ft. C) 13 ft. D) 12 ft.

**Identify the degree of the polynomial.**

19) $-a + 7a^3 - 5a^7 + 4a^2$ 19) _____

A) 7 B) 13 C) 12 D) 3

**Simplify.**

20) $\sqrt{-64}$ 20) _____

A) Not an integer B) $-8$
C) 32 D) 8

21) $(-3x^3)^2$ 21) _____

A) $9x^6$ B) $9x^5$ C) $-9x^5$ D) $-9x^6$

**Solve.**

22) $-9b + 8 + 7b = -3b + 13$ 22) _____

A) $b = -8$ B) $b = -13$ C) $b = 13$ D) $b = 5$

23) $7x - 6x = 19$ 23) _____

A) $x = -19$ B) $x = -\frac{1}{19}$ C) $x = 0$ D) $x = 19$

**Convert. (1 centimeter = 10 millimeters)**

24) 940 millimeters to centimeters 24) _____

A) 94,000 cm B) 9.4 cm C) 94 cm D) 9400 cm

**Reduce to lowest terms.**

25) $\frac{28x^3yz^2}{44xy^2z^4}$ 25) _____

A) $\frac{7yz^2}{11x^2}$ B) $\frac{4x^2}{11yz^2}$ C) $\frac{4x^2y}{11z^2}$ D) $\frac{7x^2}{11yz^2}$

**Rewrite the rational expressions as equivalent expressions with the LCD (least common denominator).**

26) $\frac{7}{16xy}$ and $\frac{5y}{8x}$ 26) _____

A) $\frac{7y}{16xy}$ and $\frac{10x}{16xy}$

B) $\frac{7}{16xy}$ and $\frac{10}{16xy}$

C) $\frac{7}{16xy}$ and $\frac{10y^2}{16xy}$

D) $\frac{7x}{16xy}$ and $\frac{10y^2}{16xy}$

**Write as a percent.**

27) 0.014 27) _____

A) 1.4% B) 0.0014% C) 0.14% D) 14%

**Perform the indicated operations.**

28) Estimate by rounding to the nearest thousand, then find the actual difference. 28) _____

$$\begin{array}{r} 63{,}441 \\ -\ 5519 \\ \hline \end{array}$$

A) Estimate: 57,900
Actual: 62,889

B) Estimate: 50,000
Actual: 68,930

C) Estimate: 58,000
Actual: 58,000

D) Estimate: 57,000
Actual: 57,922

**Multiply.**

29) $-5x(-8x - 2)$ 29) _____

A) $-8x^2 + 10x$ B) $40x^2 - 2x$ C) $50x^2$ D) $40x^2 + 10x$

**Which of the following are correct solutions to the given equation?**

30) $y = \frac{1}{5}x + 3$ 30) _____

A) (0, 3), (5, 3), (10, 6)

B) (0, 3), (5, 8), (10, 13)

C) (0, 3), (5, 4), (10, 13)

D) (0, 3), (5, 4), (10, 5)

**MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.**

**Factor completely.**

1) $18m^8 - 21m^5 + 6m^3$ 1) _____

A) $m^3(18m^5 - 21m^2 + 6)$ B) $3m^3(6m^5 - 7m^2 + 2)$

C) $3(6m^8 - 7m^5 + 2m^3)$ D) No common factor

**Multiply.**

2) $355 \times 829$ 2) _____

A) 294,295 B) 294,285 C) 294,395 D) 294,305

**Solve.**

3) The normal gasoline mileage of a car is 34 mpg. On a smooth road, its mileage is 12% higher. What is its mileage on a smooth road? Round your answer to the nearest tenth. 3) _____

A) 34 mpg B) 50 mpg C) 4.1 mpg D) 38.1 mpg

4) $3(2z - 4) = 5(z + 5)$ 4) _____

A) $z = -13$ B) $z = 13$ C) $z = 16$ D) $z = 37$

5) $\frac{8}{35}x = -\frac{16}{21}$ 5) _____

A) $-\frac{32}{15}$ B) $-\frac{10}{3}$ C) $-\frac{15}{32}$ D) $-\frac{5}{6}$

6) $-14 + 19y = 24y + 1$ 6) _____

A) $y = -3$ B) $y = 3$ C) $y = -2$ D) $y = 2$

**Add.**

7) $\frac{1}{3} + \frac{9}{12} + \frac{5}{6}$ 7) _____

A) $1\frac{11}{12}$ B) $1\frac{1}{4}$ C) $5\frac{1}{3}$ D) $3\frac{5}{6}$

**Write as a percent.**

8) 0.027 8) _____

A) 0.27% B) 2.7% C) 27% D) 0.0027%

**Simplify.**

9) $\sqrt{-121}$ 9) _____

A) 11 B) – 11

C) Not an integer D) 60

10) $(-3x^5)^4$ 10) _____

A) $-81x^{20}$ B) $81x^9$ C) $-81x^9$ D) $81x^{20}$

11) $\left(\frac{2}{3}\right)^2 + 4\frac{1}{5} \div 3\frac{1}{2}$ 11) _____

A) $2\frac{8}{15}$ B) $1\frac{103}{315}$ C) $1\frac{29}{45}$ D) $1\frac{13}{15}$

12) $8 \cdot 4 + \{12 \div [8 - (3 + 2)]\}$ 12) _____

A) 37 B) 38 C) 36 D) 35

13) $-(-(-(-12)))$ 13) _____

A) –12 B) 1 C) 12 D) $\frac{1}{12}$

**Find three solutions for the given equation.**

14) $y = \frac{1}{3}x + 8$ 14) _____

A) (0, 8), (3, 11), (6, 14) B) (0, 8), (3, 9), (6, 10)
C) (0, 8), (3, 8), (6, 16) D) (0, 8), (3, 9), (6, 14)

**Solve for the missing number.**

15) $\frac{1}{2} = \frac{x}{15}$ 15) _____

A) 0.03 B) 30 C) 7.5 D) 15

**Solve.**

16) $-6b + 7 + 4b = -3b + 12$ 16) _____

A) $b = -12$ B) $b = 5$ C) $b = 12$ D) $b = -7$

17) $-23 = n - 2$ 17) _____

A) $n = -25$ B) $n = 25$ C) $n = -21$ D) $n = 21$

18) $8x - 7x = 14$ 18) _____

A) $x = 0$ B) $x = -14$ C) $x = 14$ D) $x = -\frac{1}{14}$

**Multiply and write the product as a mixed number in simplest form.**

19) $2\frac{3}{5} \cdot 3\frac{1}{3}$ 19) _____

A) 8 B) $8\frac{2}{3}$ C) $6\frac{1}{5}$ D) $6\frac{13}{15}$

**Simplify using order of operations.**

20) $|-54| \div (-6) \cdot |-2|$ 20) _____

A) 9 B) 18 C) –18 D) –9

**Simplify.**

21) $39 - 4^2 + (-8) \div \sqrt{4}$ 21) _____

A) 8 B) 19 C) 27 D) 51

**Rewrite the rational expressions as equivalent expressions with the LCD. (least common denominator)**

22) $\frac{5}{16xy}$ and $\frac{5y}{8x}$ 22) _____

A) $\frac{5}{16xy}$ and $\frac{10y^2}{16xy}$ B) $\frac{5}{16xy}$ and $\frac{10}{16xy}$

C) $\frac{5x}{16xy}$ and $\frac{10y^2}{16xy}$ D) $\frac{5y}{16xy}$ and $\frac{10x}{16xy}$

**Subtract.**

23) $90 - 0.866$ 23) _____

A) 89.134 B) 90.866 C) 88.634 D) 89.234

**Subtract and write the resulting polynomial in descending order of degree.**

24) $(9p^2 + 16p + 12) - (6p^2 + 13p - 5)$ 24) _____

A) $3p^2 - 3p - 17$ B) $3p^4 + 3p^2 + 17$ C) $3p^2 + 3p + 17$ D) $3p^2 + 3p + 7$

**Write as a fraction or mixed number in lowest terms.**

25) 0.375 25) _____

A) $\frac{3}{8}$ B) $\frac{3}{16}$ C) $\frac{1}{3}$ D) $\frac{3}{80}$

**Find the coordinates of the x– and y– intercepts.**

26) $-2x + 5y = 10$ 26) _____

A) (0, –8) (0, –6) B) (–5, 0) (0, 2)

C) (–8, 0) (–6, 0) D) (–5, –6) (–8, 10)

**Divide.**

27) $\frac{2x^4 - 4x^3 + 7x^2}{x^2}$ 27) _____

A) $1x^4 - 2x^3 + \frac{7}{2}$ B) $2x^4 - 4x^3 + 7$ C) $2x^4 - 4x + 7x^2$ D) $2x^2 - 4x + 7$

**Reduce to lowest terms.**

28) $\frac{24x^3yz^2}{33xy^2z^4}$ 28) _____

A) $\frac{8x^2}{11yz^2}$ B) $\frac{3x^2y}{11z^2}$ C) $\frac{3x^2}{11yz^2}$ D) $\frac{8yz^2}{11x^2}$

**Evaluate the expression using the given values.**

29) $\frac{x^2}{2z+y}$ ; $x = 3$, $y = 5$, $z = -4$. 29) _____

A) – 3 B) $-\frac{9}{13}$ C) 3 D) $\frac{3}{2}$

**Solve. Round the answer to the nearest hundredth if necessary.**

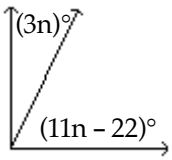
30) What number is 9% of 475? 30) _____

A) 47.5 B) 38 C) 427.5 D) 42.75

**MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.**

**Solve the problem.**

1) Find the measures of the complementary angles. 1) _____




A) 24°, 66° B) 24°, 156° C) 114°, 66° D) 24°, 88°

2) Find the length of a rectangular lot with a perimeter of 146 meters if the length is 7 meters more than the width. (P = 2L + 2W) 2) _____

A) 40 m B) 33 m C) 80 m D) 73 m

3) Matthew has two different stocks. One of the stocks is worth $9 more per share than the other. He has 17 shares of the more valuable stock and 42 shares of the other stock. His total assets in stocks is $1923. How much is the more expensive stock per share? 3) _____

A) $41 B) $21 C) $9 D) $39

**Solve.**

4) Brand X copier has improved its copier so that it produces 25% more copies than its old model. If the old model ran 543 copies per hour, how many copies would the new model run? Round your answer to the nearest whole number. 4) _____

A) 664 copies per hour B) 679 copies per hour
C) 558 copies per hour D) 310 copies per hour

5) Midtown Antiques has found that sales have decreased 3% from last year. Sales this year are $ 175,604. Find the amount of last year's sales. Round your answer to the nearest dollar. 5) _____

A) $180,935 B) $181,035 C) $182,035 D) $181,025

**Factor.**

6) $36m^7 + 36m^5 + 40m^3$ 6) _____

A) $4m^3(9m^4 + 9m^2 + 10)$ B) No common factor
C) $4(9m^7 + 9m^5 + 10m^3)$ D) $m^3(36m^4 + 36m^2 + 40)$

**Find the coordinates of the x– and y– intercepts.**

7) $2x + y = -6$ 7) _____

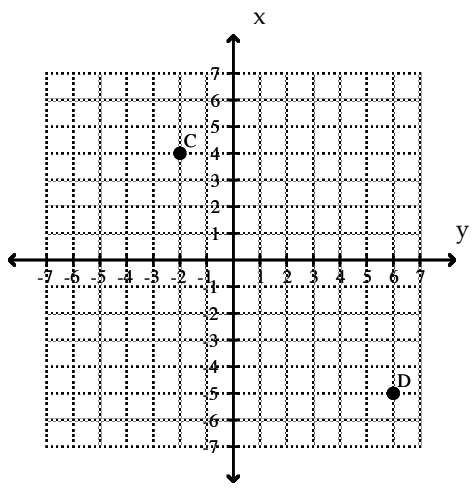
A) (–4, 0) (2, 0) B) (–6, 2) (–4, –6) C) (0, –4) (0, 2) D) (–3, 0) (0, –6)

**Add.**

8) $\frac{1}{2} + \frac{3}{8} + \frac{4}{4}$ 8) _____

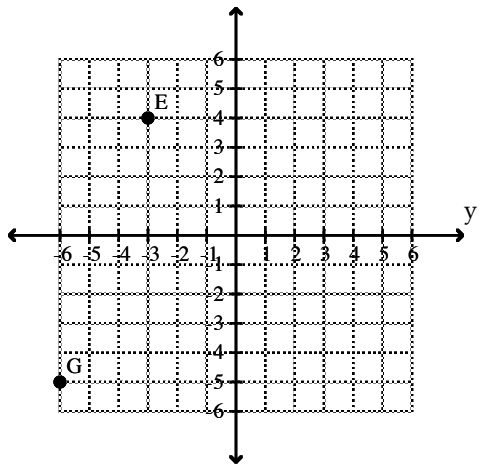
A) $1\frac{7}{8}$ B) 1 C) $4\frac{1}{2}$ D) $3\frac{3}{4}$

**Give the coordinates of the points shown on the graph.**

9) 


9) _____

A) C = (–2, 4), D = (–5, 6)
B) C = (–2, –5), D = (4, –5)
C) C = (–2, 4), D = (6, –5)
D) C = (4, 12), D = (–5, 6)

10) 


10) _____

A) E = (–3, 4), G = (–5, –6)
B) E = (–3, 4), G = (–6, –5)
C) E = (4, 10), G = (–5, –6)
D) E = (–3, –5), G = (4, –5)

**Subtract.**

11) 30 – 1.96 11) _____

A) 31.96 B) 27.54 C) 28.04 D) 28.14

**Translate to an equation, then solve.**

12) Forty decreased by the product of three and y is the same as twice the difference of y and thirty. 12) _____

A) 40 – 3y = 2(y – 30), y = 20
B) 40 – 3y = 2(y – 30), y = 14
C) 40 – 3y = 2(y – 30), y = 100
D) 40 – 3y = 2y – 30, y = 14

13) The product of negative two and a number is thirty–six. 13) _____

A) –2n = 36, n = –18
B) –2n = 36, n = 18
C) –2 + n = 36, n = 38
D) –18n = 2, n = 18

**Divide.**

14) $849 \div 31$ 14) _____

A) 26 r22 B) 27 C) 25 r7 D) 27 r12

15) $\dfrac{-2.752t^3u^3v^2}{-0.86uv^2}$ 15) _____

A) $3.2t^3u^2$ B) $3.2t^3u^3$ C) $3.2t^3u^2v$ D) $-2.752t^3u^2$

**Add .**

16) $(2x+1)+(-5x+6)$ 16) _____

A) $-3x+7$ B) $4x$ C) $3x+1$ D) $7x+7$

**Solve. Express answers in mixed number form.**

17) 71% of $42\frac{1}{2}$ is what number? 17) _____

A) $3\frac{7}{400}$ B) $3017\frac{1}{2}$ C) $301\frac{3}{4}$ D) $30\frac{7}{40}$

18) $36\frac{1}{2}$% of 125 is what number? 18) _____

A) $456\frac{1}{4}$ B) $22\frac{13}{16}$ C) $45\frac{5}{8}$ D) $4562\frac{1}{2}$

**Simplify.**

19) $25 - 3^2 + (-10) \div \sqrt{25}$ 19) _____

A) 32 B) 1 C) 14 D) 18

**Multiply.**

20) $-12x(2x - 3)$ 20) _____

A) $2x^2 + 36x$ B) $-24x^2 - 3x$ C) $-24x^2 + 36x$ D) $12x^2$

**Reduce to lowest terms.**

21) $\dfrac{42x^3yz^2}{66xy^2z^4}$ 21) _____

A) $\dfrac{7x^2}{11yz^2}$ B) $\dfrac{6x^2}{11yz^2}$ C) $\dfrac{7yz^2}{11x^2}$ D) $\dfrac{6x^2y}{11z^2}$

**Give the quadrant in which the point is located.**

22) (–9, 2) 22) _____

A) III B) IV C) II D) I

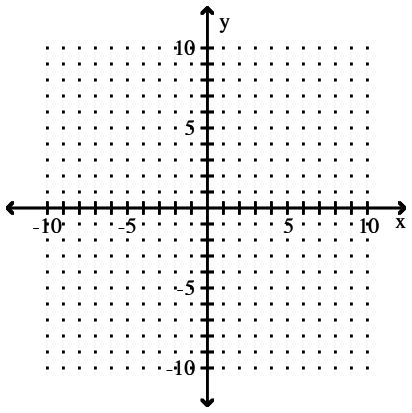
**Calculate the area of the figure with the given vertices.**

23) (2, 6), (2, 3), (7, 3), (7, 6) 23) _____

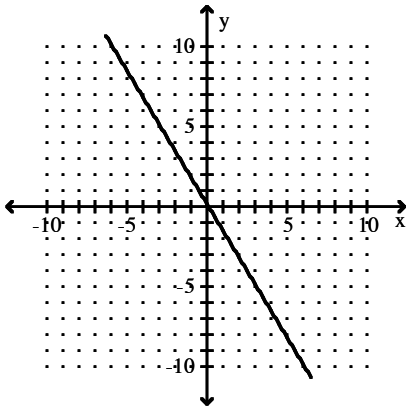
A) 15 B) 3 C) 5 D) 30

**Graph the equation.**

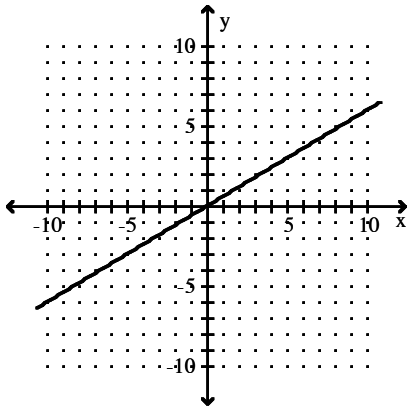
24) $y = -\frac{3}{5}x$ 24) _____



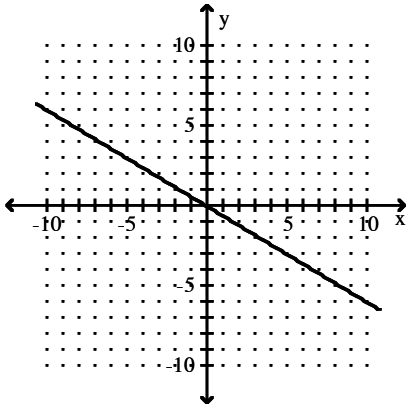

A)



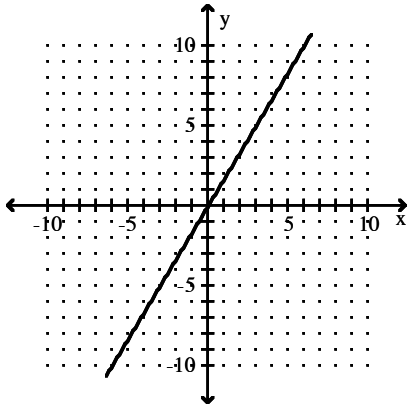

B)



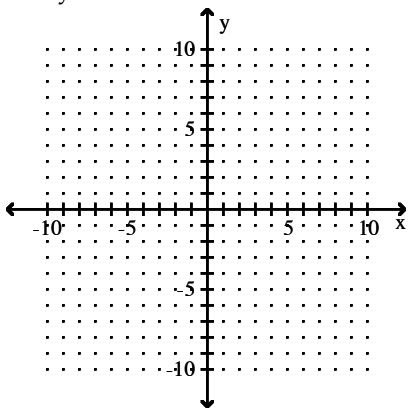

C)



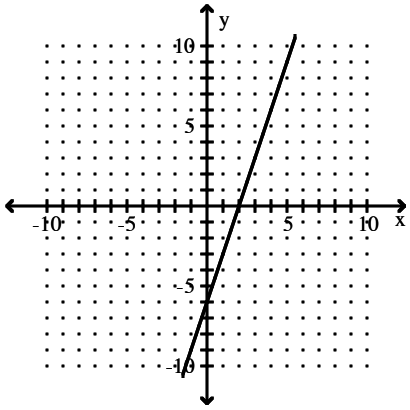

D)



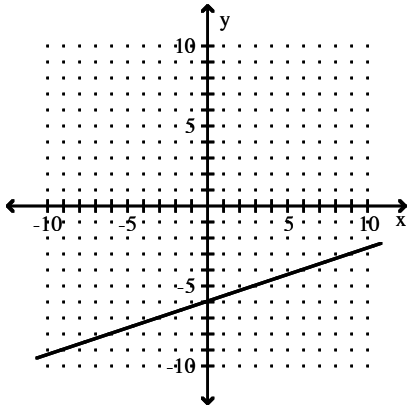
25) $3x - y = 6$ 25) _____



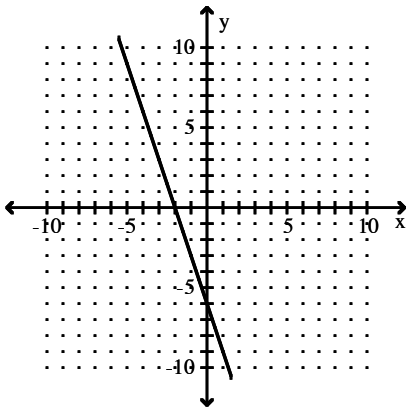

A)



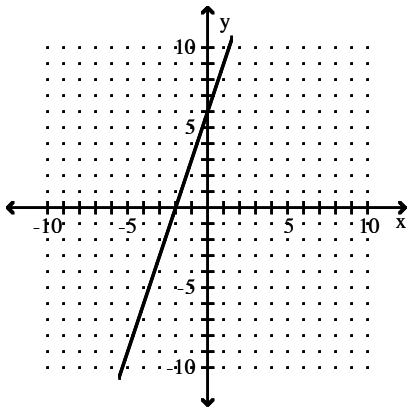

B)




C)




D)




**Solve.**

26) $9x - 8x = 20$ 26) _____

A) $x = 20$ B) $x = -\frac{1}{20}$ C) $x = -20$ D) $x = 0$

27) $-30 = n - 4$ 27) _____

A) $n = -34$ B) $n = 26$ C) $n = -26$ D) $n = 34$

28) $-6b + 8 + 4b = -3b + 13$ 28) _____

A) $b = -13$ B) $b = 5$ C) $b = 13$ D) $b = -8$

**Add.**

29) $-7 + 18 + (-19)$ 29) _____

A) 44 B) 30 C) −8 D) 6

**Find three solutions for the given equation.**

30) $y = -8x + 2$ 30) _____

A) (0, 2), (3, −40), (5, −56) B) (0, 2), (4, −30), (5, −38)

C) (3, −26), (4, −34), (5, −42) D) (3, −22), (4, −22), (5, −22)

# Final Exam Sample Packet Answer Keys

| | Form A | Form B | Form C |
|---|---|---|---|
| 1. | A | B | A |
| 2. | D | A | A |
| 3. | B | D | D |
| 4. | A | D | B |
| 5. | C | B | B |
| 6. | A | A | A |
| 7. | D | A | D |
| 8. | D | B | A |
| 9. | C | C | C |
| 10. | B | D | B |
| 11. | B | C | C |
| 12. | D | C | A |
| 13. | B | C | A |
| 14. | B | B | D |
| 15. | A | C | A |
| 16. | B | B | A |
| 17. | A | C | D |
| 18. | C | C | C |
| 19. | A | B | C |
| 20. | A | C | C |
| 21. | A | B | A |
| 22. | D | A | C |
| 23. | D | A | A |
| 24. | C | C | C |
| 25. | D | A | A |
| 26. | C | B | A |
| 27. | A | D | C |
| 28. | D | A | B |
| 29. | D | A | C |
| 30. | D | D | B |