
Directions: These problems are to be completed and turned in on the final exam day. Write neatly. Where applicable, show all work. Items are the type of problems which appear on the final exam.

No calculators are permitted on this review.

1A. Evaluate: $20 - 3(1-5)^2$

1A. _____

1B. Evaluate: $2 + 3(15 - 2^3)$

- 1B. a. 23
b. 29
c. 35
d. 45

2A. Write a mathematical expression for "the sum of three times a number and five."

2A. _____

2B. Write a mathematical expression for "the quotient of twice a number and seven."

2B. a. $\frac{2+x}{7}$

b. $2x + 7$

c. $\frac{2x}{7}$

d. $2(x + 7)$

3A. Simplify: $(-4) - 18 - (12 + 3)$

3A. _____

3B. Simplify: $-10 + (-29) - 7 + 6$

3B. a. -40

b. 20

c. 40

d. 52

4A. Ions are atoms or groups of atoms with positive or negative charges. The charges of some ions are given in the table. Use these values to find the total charge of 8 phosphate, 7 chloride and 2 aluminum atoms.

4A. _____

Aluminum	+3	Chloride	-1
Phosphate	-3	Silver	+1

4B. The following flight log records ascending (up) and descending (down) distances at various times. What is the altitude of the plane after the last entry?

<i>Time</i>	<i>Action</i>
Noon	Flying at 25,000 ft
12:20 p.m.	Descends 3500 ft
12:30 p.m.	Descends 2500 ft
12:40 p.m.	Ascends 1100 ft

- 4B. a. 17,900 ft
b. 20,100 ft
c. 21,100 ft
d. 22,600 ft

5A. Combine like terms and simplify:

$$3mn + 5m - 7mn + 4m$$

5A. _____

5B. Combine like terms and simplify:

$$-4xy - 3x + xy + 2x$$

- 5B. a. $-3xy - x$
b. $-4x^2y - 6x^2$
c. $-3xy - 5x$
d. $-3x^2y^2 - x^2$

6A. Simplify: $7 - 28 \div (-7)(3)$

6A. _____

6B. Simplify: $27 + 18 \div (-3)^2$

- 6B. a. -5
b. 24
c. 5
d. 29

7A. Evaluate: $7x^2 - y$ if $x = 3$ and $y = -5$

7A. _____

7B. Evaluate: $x^2 - 4y$ if $x = -3$ and $y = -7$

- 7B. a. -37
b. -19
c. 37
d. 19

8A. Solve: $5(8 - 13) = x - 1$

8A. _____

8B. Solve: $x + 7 - 2x = 17$

- 8B. a. -10
b. -5
c. 10
d. $\frac{17}{5}$

9A. Solve: $a - 5 + 3a = 2a - 4$

9A. _____

9B. Solve: $4b + 2 - 8b = -14$

- 9B. a. -4
b. -1
c. 3
d. 4

10A. The length of a rectangle is four times the width. If the perimeter of the rectangle is 30 feet, find the *area* of the rectangle.

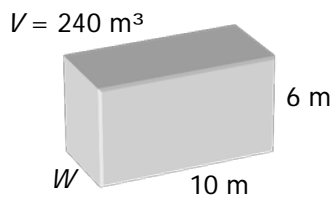
10A. _____

10B. The length of a rectangle is twice the width. If the perimeter of the rectangle is 72 ft, find the length.

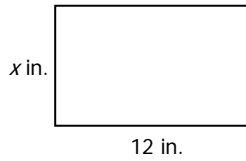
- 10B. a. 6 ft.
b. 12 ft.
c. 24 ft.
d. 36 ft.

11A. Find the unknown side for the following shape.

11A. _____



11B. Find the unknown side for the following figure.



$$A = 84 \text{ in}^2$$

- 11B. a. 7 in.
- b. 14 in.
- c. 30 in.
- d. 72 in.

12A. Simplify: $-4x^5(12x^2)$

12A. _____

12B. Simplify: $(-3x^3y^4)(-9x^2y^3)$

- 12B. a. $27x^5y^7$
- b. $-12x^6y^{12}$
- c. $27x^6y^{12}$
- d. $-12x^5y^7$

13A. Simplify: $3xy(5x + 2y)$

13A. _____

13B. Simplify: $5x(3x^3 + 2)$

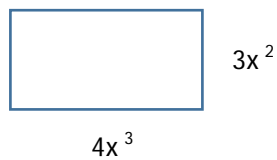
- 13B. a. $25x^4$
b. $15x^4 + 2$
c. $3x^3 + 10x$
d. $15x^4 + 10x$

14A. Let x be the width of a rectangular pool. Write and then simplify an expression for the perimeter of the pool if the length is twice the width.

14A. _____

14B. Write the perimeter of the following rectangle as an algebraic expression and then simplify.

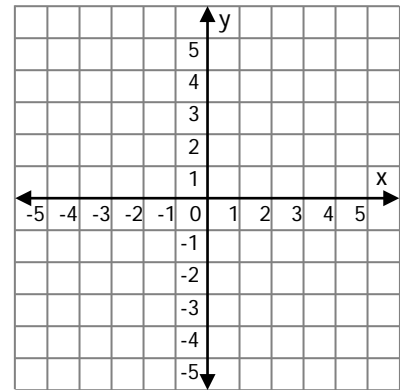
- 14B. a. $12x^5$
b. $8x^3 + 6x^2$
c. $12x^6$
d. $4x^3 + 3x^2$



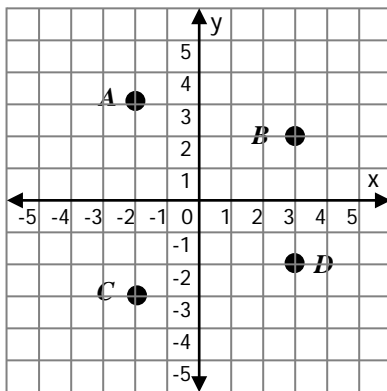
15A. Plot the following points:

- A** (0, -3)
- B** (-3, 0)
- C** (2, 3)
- D** (-2, -3)
- E** (3, -4)
- F** (-4, 1)

15A.



15B. Which letter corresponds to the point (-2, 3) ?

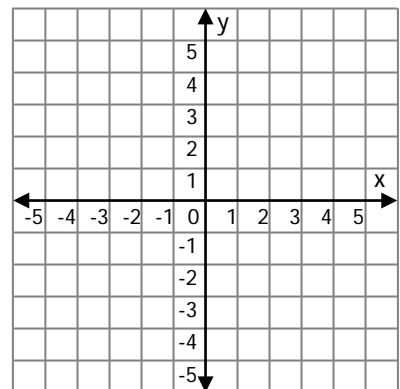


- 15B. a. **A**
- b. **B**
- c. **C**
- d. **D**

16A. Complete the table of values, then graph $y = -2x + 3$.

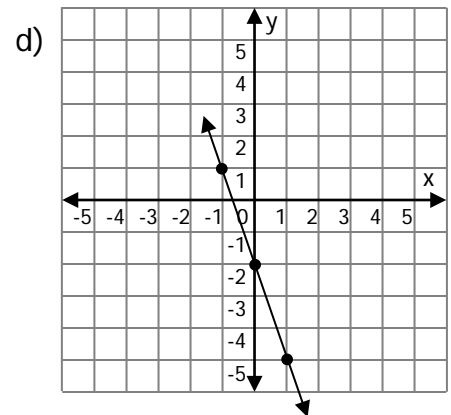
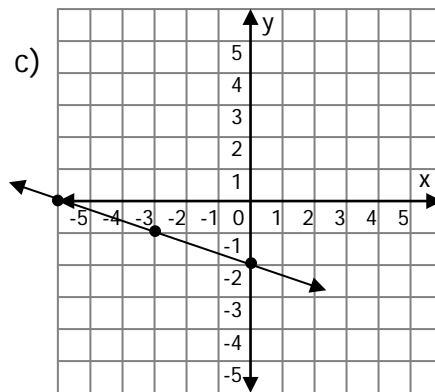
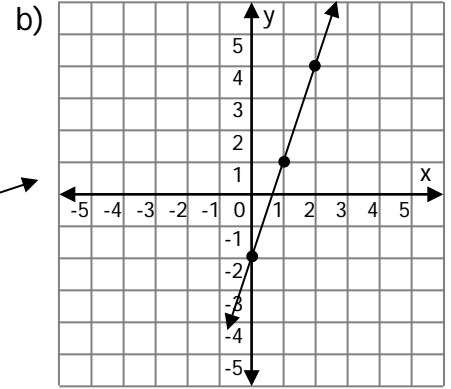
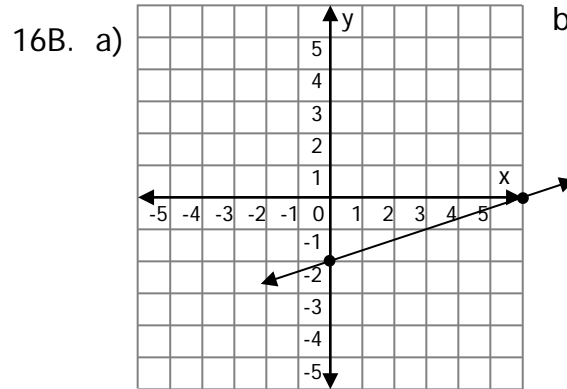
x	$y = -2x + 3$
-1	
0	
1	

16A.



16B. Complete the table of values, then graph $y = -3x - 2$.

x	$y = -3x - 2$
-2	
-1	
0	



17A. Simplify: $\left(\frac{2x}{y}\right)^4$

17A. _____

17B. Simplify: $\left(\frac{3y^2}{x}\right)^3$

17B. a. $\frac{3y^6}{x}$

b. $\frac{27y^5}{x}$

c. $\frac{9y^5}{x^3}$

d. $\frac{27y^6}{x^3}$

18A. Write each of the following fractions as an equivalent fraction with a denominator of $24x$.

i) $\frac{1}{6x}$

ii) $\frac{3x}{8}$

iii) $\frac{5}{24}$

18A. i) _____

ii) _____

iii) _____

18B. The following fractions are equivalent. Find the missing

numerator: $\frac{3}{7} = \frac{?}{42x}$

- 18B. a. x
b. $3x$
c. $6x$
d. $18x$

19A. Determine the least common multiple (LCM) of $10x^2$ and $4x^3$.

19A. _____

19B. Determine the least common multiple (LCM) of $6x^3$ and $15x^2$.

- 19B. a. $3x^2$
b. $30x^3$
c. $90x^5$
d. $30x^5$

20A. Solve: $\frac{12}{18} = \frac{x}{24}$

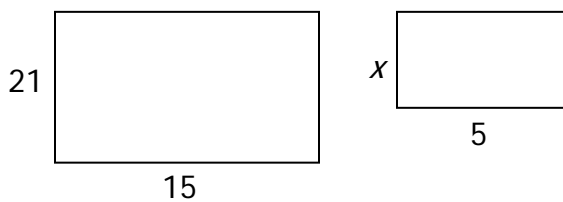
20A. _____

20B. Solve: $\frac{15}{10} = \frac{9}{x}$

- 20B. a. $1\frac{1}{2}$
b. 4
c. 6
d. $14\frac{1}{2}$

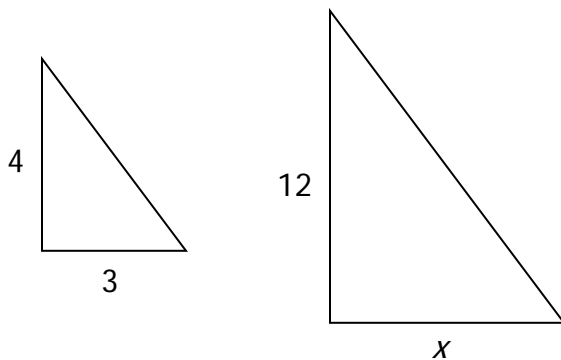
21A. Given the similar rectangles, find x .

21A. _____



21B. Given the similar triangles, find x .

- 21B. a. 1
b. 9
c. 11
d. 16



22A. Simplify: $\frac{14x^3}{y} \cdot \frac{6}{7x}$

22A. _____

22B. Simplify: $\frac{15x^5}{2} \cdot \frac{10}{3x^2}$

22B. a. $25x^3$

b. $\frac{9x^7}{4}$

c. $\frac{x^3}{25}$

d. $\frac{4}{9x^7}$

23A. Simplify: $\frac{12x^2}{5} \div \frac{4x}{25}$

23A. _____

23B. Simplify: $\frac{-5x^4}{24} \div \frac{10x^2}{3}$

23B. a. $-\frac{x^2}{16}$

b. $-\frac{25x^6}{36}$

c. $-\frac{16}{x^2}$

d. $-\frac{36}{25x^6}$

24A. Simplify: $\frac{x}{5} - \frac{3}{5}$

24A. _____

24B. Simplify: $\frac{x}{10} - \frac{9}{10}$

24B. a. $\frac{-9x}{10}$

b. $\frac{x-9}{10}$

c. $-\frac{9x}{20}$

d. $\frac{x-9}{0}$

25A. Simplify: $\frac{2}{5} + \frac{3}{10x}$

25A. _____

25B. Simplify: $\frac{5}{6x} + \frac{1}{3x}$

25B. a. $\frac{6}{9x}$

b. $\frac{6}{9x^2}$

c. $\frac{7}{6x}$

d. $\frac{7}{18x^2}$

26A. Perform the indicated operations:

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

26A. _____

26B. Perform the indicated operations:

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

26B. a. $4x^4 + 3x^2 - 8$

b. $4x^2 + 3x + 2$

c. $4x^4 + 3x^2 + 2$

d. $4x^2 + 3x - 8$

27A. Factor completely: $8a^2b + 16ab$

27A. _____

27B. Factor completely: $5xy - 10y^2$

- 27B. a. $5(xy - 2y^2)$
b. $5y(x - 2)$
c. $5y(x - 10y^2)$
d. $5y(x - 2y)$

28A. Solve:

- i) $x - 6 = 3$
ii) $x + 6 = 3$
iii) $-6x = 3$
iv) $\frac{x}{-6} = 3$

28A. _____

28B. Which equation has -4 as its solution?

- 28B. a. $y + 5 = -20$
b. $5y = -20$
c. $y - 5 = -20$
d. $\frac{y}{5} = -20$

29A. Solve: $7 + 2(7 - x) = 17$

29A. _____

29B. Solve: $-3x + 8 = 15$

29B. a. -13

b. $-\frac{7}{3}$

c. $\frac{23}{3}$

d. 2

30A. Solve: $a - 2(3a - 5) = 2a - 4$

30A. _____

30B. Solve: $3(y + 1) = -2(y - 2) - 6$

30B. a. -1

b. $-\frac{13}{5}$

c. $-\frac{9}{5}$

d. $\frac{13}{5}$

31A. Translate to an equation. Let x be the unknown number:
Seven less than a number is five more than half the number.

31A. _____

31B. Translate to an equation. Let x be the unknown number:
Thirty is twice the sum of a number and five.

- 31B. a. $30 = 2x + 5$
b. $30 = 2(x + 5)$
c. $30 + 2x = 5$
d. $30 = 2(5x)$

32A. Solve: $\frac{x}{5} - 2x = 8$

32A. _____

32B. Solve: $\frac{x}{8} + \frac{x}{12} = 5$

- 32B. a. 1
b. 24
c. 50
d. 96

33A. Simplify: $x - 1.2y - 0.44x + 2.06y$

33A. _____

33B. Simplify: $-4.6x + 3.04y + 2x - 7.5y$

- 33B. a. $-2.6x - 4.46y$
b. $-6.6x - 10.54y$
c. $-4.4x - 2.29y$
d. $-2.6x - 3.79y$

34A. Solve: $0.5(2 - x) = -1.5x + 8$

34A. _____

34B. Solve: $-3.5x - 2.2 = 11.8$

- 34B. a. $x = -4$
b. $x = -3$
c. $x = -2$
d. $x = 4$

35A. Solve: 400 is what percent of 80?

35A. _____

35B. Solve: 32 is 64% of what number?

- 35B. a. 0.5
b. 2
c. 20.48
d. 50

36A. If the cost of living went up 6% this year, how much does Bob need to make this year to have the same buying power he did last year when he earned \$24,000?

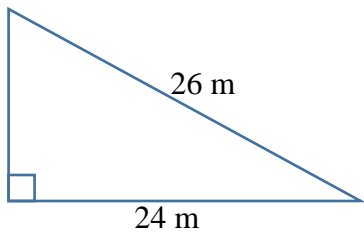
36A. _____

36B. A plasma TV is reduced to \$5040 from an original price of \$6000. What is the percent decrease?

- 36B. a. 16%
b. 19%
c. 84%
d. 960%

37A. Find the area of the right triangle:

37A. _____



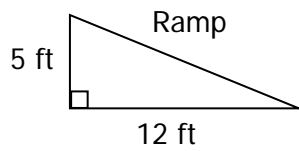
37B. Find the length of this ramp to a loading dock.

37B. a. 7 ft

b. $\sqrt{119}$ ft

c. 13 ft

d. 17 ft





**MATH 47 - FINAL EXAM REVIEW
SOLUTIONS**

1A. -28

1B. a

2A. $3x + 5$

2B. c

3A. -37

3B. a

4A. -25

4B. b

5A. $-4mn + 9m$

5B. a

6A. 19

6B. d

7A. 68

7B. c

8A. -24

8B. a

9A. $\frac{1}{2}$

9B. d

10A. 36 ft^2

10B. c

11A. 4 m

11B. a

12A. $-48x^7$

12B. a

13A. $15x^2y + 6xy^2$

13B. d

14A. $6x$

14B. b

15A. (see last page)

15B. a

16A. (see last page)

16B. d

17A. $\frac{16x^4}{y^4}$

17B. d

18A. $i) \frac{4}{24x}; ii) \frac{9x^2}{24x};$

$iii) \frac{5x}{24x}$

18B. d

19A. $20x^3$

19B. b

20A. 16

20B. c

21A. 7

21B. b

22A. $\frac{12x^2}{y}$

22B. a

23A. $15x$

23B. a

24A. $\frac{x-3}{5}$

24B. b

25A. $\frac{4x+3}{10x}$

25B. c

26A. $7x^2 - 5x - 2$

26B. d

27A. $8ab(a + 2)$

27B. d

28A. 9; -3; $-\frac{1}{2}$; -18

28B. b

29A. 2

29B. b

30A. 2

30B. a

31A. $x - 7 = \frac{1}{2}x + 5$

31B. b

32A. $-\frac{40}{9}$

32B. b

33A. $0.56x + 0.86y$

33B. a

34A. 7

34B. a

35A. 500%

35B. d

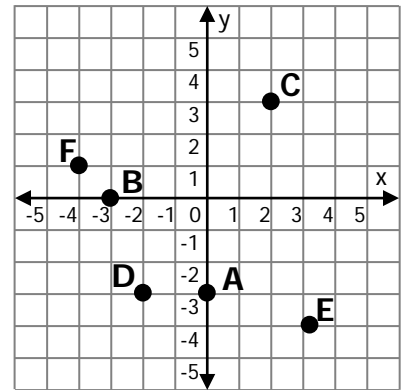
36A. \$25,440

36B. a

37A. 120 m^2

37B. c

15A.



16A.

