Math 50 Exam #2 Review Sheet – Summer 2015

Please Note: The exam will cover 3.2-3.7 and Chapter 4, 5.1-5.2. The review sheet is designed for you to have a guide as to what to study. The problems on the exam are not limited to the type of problems on this sheet. Any types of problem from the assigned homework problems are possible exam questions. Please attempt other practice problems other than those presented on this sheet in order to be completely prepared for the exam.

1. Translate the following to an expression.

a. Five more than a number.
b. The difference of a number and nine.
c. Six less than a number.
d. A number decreased by twenty-four.
e. Eighteen subtracted from negative seven times *y*.
f. Thirty-nine minus five times *x*
g. The product of eight and *x*.
g. Forty less than the product of three and *y* is equal to seven times *y*.
h. Six times *x* plus five times the difference of *x* and seven
i. Nineteen minus the sum of *x* and six.
j. Twice *r* subtracted from seven times the sum of *r* and one
k. Three times the difference of *r* and five.
l. The sum of *n* and three subtracted from twelve times *n*
m. Negative eleven plus the product of 2 and the difference of *n* and five.

2. Simplify the following, rewrite the resulting polynomial in descending order and give the degree of the resulting polynomial.

a. $t^5+7t^2-20+6t^4-7t^2+9t^3+18-4t-8t^5$
b. $-3y^2+15y-13-6y^2+9y^4-8y^3-12y^4+13+3y-10y^4$

3. Add or subtract the following polynomials.

a. $\left(-2b^6+3b^4-b^2\right)+\left(b^6+2b^4+2b^2\right)$
b. $\left(x^5+9x^4-18x^3-5x^2+6x-9\right)+\left(-2x^5-3x^4+4x^3-x^2-6x+8\right)$
c. $\left(5x^2y-2xy+9xy^2\right)-\left(8x^2y+13xy+12xy^2\right)$
d. $\left(-5x^4+6x^3-9x^2+12x+13\right)-\left(3x^4+6x^3+2x^2-8x+2\right)$

4. Multiply the following polynomials.

a. $5xy\left(9x^2y^3\right)\left(2x^4\right)$
b. $9ab^2\left(4a^3-3ab-5b^2\right)$

c. $\left(6a^4b^2\right)^3$

d. $(t-6)(t+7)$

e. $(x-4y)(3x-8y)$

f. $(5z+3)(7z-9)$

g. $(2x-1)\left(x^2-4x+2\right)$

5. Find the prime factorization of the following numbers.

a. 72
b. 156
c. 268

6. List all possible factors of the following numbers.

a. 80
b. 120
c. 54

7. Find the greatest common factor of the following pairs of numbers by listing.

a. 130 and 78
b. 40 and 32
c. 72 and 120

8. Find the greatest common factor of the following pairs of numbers by prime factorization.

a. 240 and 150
b. 336 and 504

9. Find the greatest common factor of the following.

a. $40x^6y^2z^3$ and $32x^3y^3$

b. $24m^2n^8$, $12m^3n^5p$ and $30m^2n^3$

10. Divide the following monomials.

a. $48x^3y^8z^5w^2 \div \left(-6x^2y^3z^2\right)$

b. $38m^7n^3 \div 2m^4n$

11. Factor the GCF.

a. $8x-4$
b. $2n^2+6n$
c. $32b^8+24b^4$
d. $20x^5y^2z^3-24x^2y^7$
e. $10x^4y^6z-20x^5y^3z^2-40x^3y^5$

12. Calvin installs tile. The expression $9lw+45$ describes the revenue he receives for tiling a rectangular room where *l* represents the length of the room and *w* represents the width. The expression $3lw+t$ describes his cost for tiling a rectangular room, where *t* represents the number of tiles required.

a. Write an expression in simplest form for net.
b. Calvin gets a job to tile a 12 ft.by 14 ft. room. He uses 672 tiles. Calculate the profit.

13. Candice makes reed baskets in three sizes, small, medium, and large. She sells the small baskets for $5, medium for $9, and large for $15. The small baskets cost her $2 each to make, medium $4 each, and large $7 each.

a. Write a polynomial that describes her revenue.
b. Write a polynomial that describes her cost.
c. Write an expression in simplest form for her net.
d. In one day she sells 6 small, 9 medium, and 3 large baskets. Find her net. Is it a profit or a loss?

14. Solve the following equations. Check your answers.

a. $y+19=-6$
b. $5=t-11$
c. $2x-15-x=9-17$
d. $6b+7=5b+3$
e. $8u+13-2u=2u+11+3u$
f. $9-5(b-1)=-4(b-2)$
g. $5t=20$
h. $-15n=45$
i. $9u-17=-53$
j. $-4y+15=-9y-20$
k. $5-8x-24=7x+11-5x$
l. $13-9h-15=7h+22-8h$
m. $-2(x+7)-9=5x+12$
n. $11x-4(2x-3)=18+5(x+2)$
o. $8x-(3x+7)=14-4(x-6)$

15. Translate the following to an equation, then solve.

a. Five more than a number is equal to negative seven.
b. The difference of a number and nine is equal to four.
c. Six less than a number is fifteen.
d. A number decreased by twenty-four is negative seven.
e. Eighteen subtracted from negative seven times y is equal to three.
f. Thirty-nine minus five times x is equal to the product of eight and x.
g. Forty less than the product of three and y is equal to seven times y.
h. Six times x plus five times the difference of x and seven is equal to nineteen minus the sum of x and six.
i. Two times r subtracted from seven times the sum of r and one is equal to three times the difference of r and five.
j. The sum of n and three subtracted from twelve times n is the same as negative eleven plus the product of 2 and the difference of n and five.

16. An architect consultant feels that the optimal design for a new building would be a rectangular shape where the length is four times the width. Budget restrictions force the building perimeter to be 300 feet. What will be the dimensions of the building?

17. The roof of a building is to be an isosceles triangle. The equal sides of the triangle must be 5 m less than twice the base. The perimeter is to be 70 m. What will the lengths of the base and the sides be?

18. 84 ft. of border strip was used to go around a rectangular room. The width of the room is 4 ft. less than the length. What are the dimensions?

19. The sum of the angles in any triangle is $180°$. Suppose we have a triangle with the second angle measuring $10°$ more than the first and the third angle is $7°$ less than the first. What are the three angle measurements?

20. A field is developed so that the length is 2 m less than three times the width. The perimeter is 188 m. Find the dimensions of the field.

21. Monique sells makeup products. One of the products is a lotion that comes in two different size bottles. The smaller-size bottle sells for $8 and the larger-size bottle for $12. She remembers that she sold 5 more smaller bottles than larger bottle that day but doesn't remember exactly how many of each. She also remembers the total sales of the lotion was $260. How many of each size did she sell?

22. Write the following improper fractions as a mixed number.

a. $\frac{52}{9}$ *b.* $\frac{-111}{20}$

23. Write the following mixed numbers as an improper fraction.

a. $13\frac{2}{5}$ *b.* $-15\frac{5}{6}$

24. Reduce the following to lowest terms.

a. $\frac{66}{88}$

b. $-\frac{196}{210}$

c. $\frac{10x}{32}$

d. $\frac{30h^2k}{18h^4k}$

e. $\frac{-38a^4b^5c^2d^4}{95a^{10}bc^7}$