

# ALEKS® FND M030 - Review Pack #1

Intermediate Algebra / FND M030 Summer 16-FC5 – 32322/31723-Anju D-04S1MATH03-SO2 (Prof. Dhamija)

Student Name/ID:
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1. Evaluate the expression when  $c = -6$ .

$$c^2 + 7c + 4$$

2. Simplify.

$$\left( \frac{4m^4}{3m^7n^2} \right)^2$$

Write your answer using only positive exponents.

3. Multiply.

$$(5v + 4w)(5v - 4w)$$

Simplify your answer.

4. Rewrite without parentheses and simplify.

$$(u - 4)^2$$

5. Multiply.

$$(7x^2 - 4x + 2)(3x - 5)$$

Simplify your answer.

6. Factor  $6y^2 + 9y^3$ .

7. Factor by grouping.

$$2w^3 + 5w^2 + 14w + 35$$

8. Factor.

$$w^2 - 36$$

9. Factor.

$$125 - 8v^3$$

10. Factor completely:

$$32u^2 - 2u^2v^4.$$

11. Factor.

$$y^2 - 10y + 16$$

12. Simplify.

$$\frac{\frac{5x + 25}{x}}{\frac{10x + 20}{3x}}$$

13. Rationalize the denominator and simplify.

$$\frac{-9}{2\sqrt{x} - 3}$$

Assume that the variable represents a positive real number.

14. Simplify.

$$\frac{4u^2 - 100}{u^2 - 8u + 15}$$

15. Write the following expression in simplified radical form.

$$\sqrt[3]{40t^8w^3}$$

Assume that all of the variables in the expression represent positive real numbers.

16. Solve for  $x$ .

$$y = (x - 8)m$$

17. For each equation, choose the statement that describes its solution.  
If applicable, give the solution.

$3(w - 2) - 5w = -2(w + 3)$
<input type="radio"/> No solution
<input type="radio"/> $w =$
<input type="radio"/> All real numbers are solutions
$5(2 - v) - v = 2(v + 1)$
<input type="radio"/> No solution
<input type="radio"/> $v =$
<input type="radio"/> All real numbers are solutions

18. Solve for  $w$ .

$$-5 = \frac{1}{w - 5}$$

Simplify your answer as much as possible.

19. Solve for  $w$ .

$$-\frac{8}{w+4} = -\frac{3}{2w+8} + 2$$

20. Add.

$$(6 - 2i) + (4 + 3i)$$

Write your answer as a complex number in standard form.

21. Multiply.

$$(-3 + 6i)(-4 + 3i)$$

Write your answer as a complex number in standard form.

22. Use the quadratic formula to solve for  $x$ .

$$2x^2 + 5x - 1 = 0$$

23. The functions  $f$  and  $g$  are defined as follows.

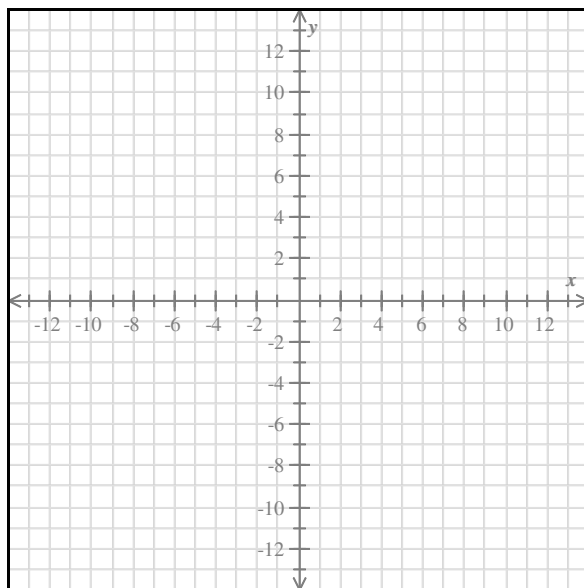
$$f(x) = -3x + 2 \quad g(x) = 3x^3 + 5$$

Find  $f(3)$  and  $g(-3)$ .

Simplify your answers as much as possible.

24. Graph the parabola.

$$y = -3x^2$$



25. Solve for  $w$ .

$$5w^2 = -17w - 6$$

26. Fill in the blank to make the expression a perfect square.

$$x^2 - 12x + \square$$

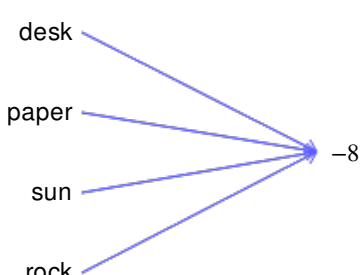
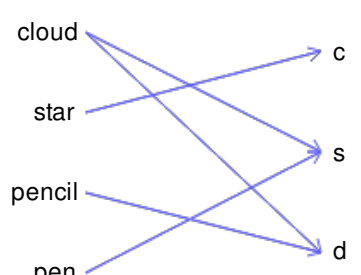
27. Compute the value of the discriminant and give the number of real solutions of the quadratic equation.

$$-5x^2 - x - 4 = 0$$

Discriminant:

Number of real solutions:

28. For each relation, decide whether or not it is a function.

<p style="text-align: center;">Relation 1</p> <table style="width: 100%; border: none;"> <thead> <tr> <th style="text-align: left; width: 50%;"><i>Domain</i></th> <th style="text-align: right; width: 50%;"><i>Range</i></th> </tr> </thead> <tbody> <tr> <td>desk</td> <td></td> </tr> <tr> <td>paper</td> <td></td> </tr> <tr> <td>sun</td> <td></td> </tr> <tr> <td>rock</td> <td></td> </tr> <tr> <td></td> <td style="text-align: right;">-8</td> </tr> </tbody> </table>  <p> <input type="radio"/> Function  <input type="radio"/> Not a Function         </p>	<i>Domain</i>	<i>Range</i>	desk		paper		sun		rock			-8	<p style="text-align: center;">Relation 2</p> <table style="width: 100%; border: none;"> <thead> <tr> <th style="text-align: left; width: 50%;"><i>Domain</i></th> <th style="text-align: right; width: 50%;"><i>Range</i></th> </tr> </thead> <tbody> <tr> <td>cloud</td> <td></td> </tr> <tr> <td>star</td> <td></td> </tr> <tr> <td>pencil</td> <td></td> </tr> <tr> <td>pen</td> <td></td> </tr> <tr> <td></td> <td style="text-align: right;">c</td> </tr> <tr> <td></td> <td style="text-align: right;">s</td> </tr> <tr> <td></td> <td style="text-align: right;">d</td> </tr> </tbody> </table>  <p> <input type="radio"/> Function  <input type="radio"/> Not a Function         </p>	<i>Domain</i>	<i>Range</i>	cloud		star		pencil		pen			c		s		d
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**29.** Suppose that the relation  $T$  is defined as follows.

$$T = \{(9, -8), (0, 9), (-7, 4), (-7, -5)\}$$

Give the domain and range of  $T$ .

Write your answers using set notation.

**30.** The functions  $f$  and  $g$  are defined as follows.

$$f(x) = 2x^3 + 6 \quad g(x) = -5x - 1$$

Find  $f(-3)$  and  $g(4)$ .

Simplify your answers as much as possible.



# FND M030 - Review Pack #1 Answers for class Intermediate Algebra / FND M030 Summer 16-FC5 – 32322/31723-Anju D-04S1MATH03-SO2

1.  $-2$

2.  $\frac{16}{9m^6n^4}$

3.  $25v^2 - 16w^2$

4.  $u^2 - 8u + 16$

5.  $21x^3 - 47x^2 + 26x - 10$

6.  $3y^2(2 + 3y)$

7.  $(2w + 5)(w^2 + 7)$

8.  $(w + 6)(w - 6)$

9.  $(5 - 2v)(25 + 10v + 4v^2)$

10.  $2u^2(2 - v)(2 + v)(4 + v^2)$

11.  $(y - 2)(y - 8)$

12.  $\frac{3(x + 5)}{2(x + 2)}$

13.  $\frac{-18\sqrt{x} - 27}{4x - 9}$

14.  $\frac{4(u + 5)}{(u - 3)}$

15.  $2t^2w\sqrt[3]{5t^2}$

16.  $x = \frac{y}{m} + 8$

17.

$3(w - 2) - 5w = -2(w + 3)$
<input type="radio"/> No solution
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$5(2 - v) - v = 2(v + 1)$
<input type="radio"/> No solution
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18.  $w = \frac{24}{5}$

19.  $w = -\frac{29}{4}$

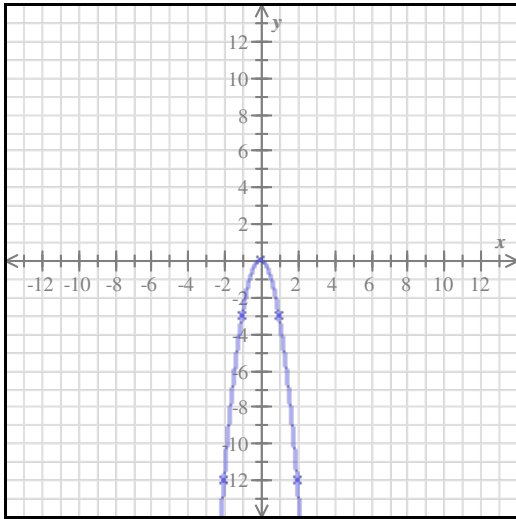
20.  $10 + i$

21.  $-6 - 33i$

22.  $\frac{-5 + \sqrt{33}}{4}, \frac{-5 - \sqrt{33}}{4}$

23.  $f(3) = -7$   
 $g(-3) = -76$

24.



25.  $-\frac{2}{5}, -3$

26.  $x^2 - 12x + 36$

27. Discriminant =  $-79$

Number of real solutions =  $0$

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**29.** domain = {9, 0, -7}

range = {-8, 9, 4, -5}

**30.**  $f(-3) = -48$

$g(4) = -21$