

Math 101, Ch. 4, Practice Test

1. Simplify

(a) $(x - 8) + (x + 3)$

(b) $(4x - 8) - (x + 5)$

2. Simplify

(a) $(x^2 + 6x - 5) + (x^2 + 3x - 2)$

(b) $(x^2 + 5x - 5) - (x^2 + 6x - 2)$

3. If $x = 2$, evaluate

$x^3 - 3x + 7$

4. If $x = -2$, evaluate

$5x^3 - 3x^2$

5. Simplify

(a) $-10x^4 \cdot 3x^6$

(b) $-2x^5y(-5xy^3)$

6. Simplify

(a) $(2x^3y^4)^5$

(b) $(-4xy^6)^2$

7. Simplify

$$\frac{45x^3y^5}{18x^2y^5}$$

8. Simplify

$$\left(\frac{3x^5}{18}\right)^2$$

<p>9. Multiply</p> <p>(a) $-6x(x + 5)$</p> <p>(b) $4x^2(x - 2)$</p>	<p>10. Multiply</p> <p>(a) $5x(x^2 - 6x + 7)$</p> <p>(b) $-3(x^2 - 4x + 5)$</p>
<p>11. Multiply and simplify</p> <p>$7 + 3(2x - 1)$</p>	<p>12. Multiply and simplify</p> <p>$x(x + 6) + 4(x + 5)$</p>

13. Multiply and simplify.

$$(x + 1)(x + 2)$$

14. Multiply and simplify.

$$(x - 8)(x + 9)$$

15. Multiply and simplify.

$$(3x + 4)(5x - 6)$$

16. Multiply and simplify.

$$(2x + 1)(3x^2 - 4x + 6)$$

17. Divide.

$$x + 5 \overline{)x^2 + 6x + 5}$$

18. Divide.

$$(x^3 + 2x - 3) \div (x + 3)$$

$$x + 3 \overline{) \quad \quad \quad}$$

19. Write in scientific notation

(a) 0.0732

(b) 8,450,000,000

20. Write in standard form

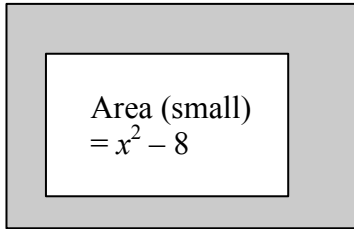
(a) 9.54×10^5

(b) 1.57×10^{-6}

<p>21. Simplify.</p> <p>(a) $-a^0 - b^0$</p> <p>(b) $2^0 - 2$</p>	<p>22. Simplify. Write your answer using positive exponents only.</p> <p>(a) $5x^6 \cdot 4y^{-2}$</p> <p>(b) $20x^{-8}y^5 \cdot x^2$</p>
<p>23. Simplify. Write your answer using positive exponents only.</p> <p>(a) $\frac{x^8}{x^{-5}}$</p> <p>(b) $\frac{3x^{-2}x^4}{x^{-9}x^0}$</p>	<p>24. Simplify. Write your answer using positive exponents only.</p> <p>(a) $\left(\frac{x^9}{9}\right)^{-2}$</p> <p>(b) $(3x^{-7})^{-3}$</p>

25. Find the area of the shaded region.

Area (large) = $8x^2 + 4x - 2$



Addition Table

+	1	2	3	4	5	6	7	8	9	10
1	2	3	4	5	6	7	8	9	10	11
2	3	4	5	6	7	8	9	10	11	12
3	4	5	6	7	8	9	10	11	12	13
4	5	6	7	8	9	10	11	12	13	14
5	6	7	8	9	10	11	12	13	14	15
6	7	8	9	10	11	12	13	14	15	16
7	8	9	10	11	12	13	14	15	16	17
8	9	10	11	12	13	14	15	16	17	18
9	10	11	12	13	14	15	16	17	18	19
10	11	12	13	14	15	16	17	18	19	20

Multiplication Table

×	1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10
2	2	4	6	8	10	12	14	16	18	20
3	3	6	9	12	15	18	21	24	27	30
4	4	8	12	16	20	24	28	32	36	40
5	5	10	15	20	25	30	35	40	45	50
6	6	12	18	24	30	36	42	48	54	60
7	7	14	21	28	35	42	49	56	63	70
8	8	16	24	32	40	48	56	64	72	80
9	9	18	27	36	45	54	63	72	81	90
10	10	20	30	40	50	60	70	80	90	100

Rules for Signed Numbers

<i>Addition</i>	<i>Subtraction</i>
Positive + Positive = Positive POSITIVE + Negative = Positive Positive + NEGATIVE = Negative Negative + Negative = Negative Numbers in bold, capital letters have a greater magnitude than nonbold, lower case partner number.	$A - B = A + (-B)$
<i>Multiplication</i>	<i>Division</i>
Positive \times Positive = Positive Positive \times Negative = Negative Negative \times Positive = Negative Negative \times Negative = Positive	Positive \div Positive = Positive Positive \div Negative = Negative Negative \div Positive = Negative Negative \div Negative = Positive

Rules for Exponents	
<i>Product Rule</i>	$a^m \cdot a^n = a^{m+n}$
<i>Quotient Rule</i>	$\frac{a^m}{a^n} = a^{m-n} \quad (a \neq 0)$
<i>Power Rules</i>	$(a^m)^n = a^{mn}$ $(ab)^m = a^m b^m$ $\left(\frac{a}{b}\right)^m = \frac{a^m}{b^m} \quad (b \neq 0)$
<i>Zero Exponent</i>	$a^0 = 1 \quad (a \neq 0)$
<i>Negative Exponent</i>	$a^{-n} = \frac{1}{a^n} \quad (a \neq 0)$