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(Sugden, Keogh, 1990).

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(Vaivre-Douret, 2013; Zwicker . 2012; Missiuna . 2011; Polatajko . 2006; Kaplan . 1998) 5-6%

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(DSM – I - TR, 2000).

Macnab (Toussaint-Thorin . 2013; Venetsanou . 2011; Visser, 2003; . 2001; Geuze . 2001) , “ ,

(Green . 2008; Wilson, 2005).

(Chen . 2009; Faught . 2008; Dewey . 2002; Pereira . 2001).

(Piek . 2010).

(Magalhaes . 2011).

, , (, , ,), , ,

(Coetzee, Pienaar, 2013; Rosenblum, 2013; Fong . 2012; Gheysen . 2011; Sinani, 2011; Nikoli , Ili Stošovi , 2009; Coleman , 2004; Schoemaker . 2001).

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3.

(Westendorp . 2011; Packiam, 2007; Desoete, 2006; Dickerson Mayes, Calhoun, 2006)

(Prunty . 2013; Hill, Khanem, 2009; Vieira . 2009; Smits-Engelsman . 2003),
(Tse . 2014; Pozzo . 2006),
(Pieters . 2012).

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 (Brown, 1974, , , 2012),
 Berges, Lezine (1972, -
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 Luria's Neuropsychological Investigation (1st ed, 4th printing, Christensen, 1990)
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 Desoete, 2006).
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IV

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VI

1. American Psychiatric Association (APA) (2000): Diagnostic and statistical manual of mental health disorders. 4th ed. Washington DC: American Psychiatric Association
2. , . (1975):
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4. Chen, Y., Tseng, Mei-Hui, Huc, Fu-Chang, Cermak, A. S. (2009): Psychosocial adjustment and attention in children with developmental coordination disorder using different motor tests. *Research in Developmental Disabilities* 30, 1367–1377
5. Coetzee, D., Pienaar, E. A. (2013): The effect of visual therapy on the ocular motor control of seven-to eight-year-old children with Developmental Coordination Disorder (DCD). *Research in Developmental Disabilities* 34, 4073-4084
6. Coleman, R., Piek, P. J., Livesey, J. D. (2004): A longitudinal study of motor ability and kinaesthetic acuity in young children at risk of developmental coordination disorder. *Human Movement Science* 20, p. 95-110
7. Christensen, A.-L. (1990): Luria's Neuropsychological Investigation (1st ed, 4th printing). Munksgaard, Copenhagen
8. , ., , . (1992):
9. Desoete, A., Gregoire, J. (2006): Numerical competence in young children and in children with mathematics learning disabilities, *Learning and Individual Differences* 16, p. 351-367

10. Dewey, D., Kaplan, J. B., Crawford, G. S., Wilson, N. B., (2002): Developmental coordination disorder: Associated problems in attention, learning, and psychosocial adjustment. *Human Movement Science* 21, p.905-918
11. Dickerson Mayes, S., Calhoun, L. S. (2006): Frequency of reading, math, and writing disabilities in children with clinical disorders. *Learning and Individual Differences* 16, p. 145–157
12. . (2003): , , , .
13. Faght, E. B., Cairney, J., Hay, J., Veldhuizen, S., Missiuna, C., Spironello, A. C.(2008): Screening for motor coordination challenges in children using teacher ratings of physical ability and activity. *Human Movement Science* 27, p. 177–189
14. Fong, S.M. S., Tsang, W.N. W., Gabriel Y.F. (2012): Altered postural control strategies and sensory organization in children with developmental coordination disorder. *Human Movement Science* 31, p. 1317–1327
15. Geuze, H.R., Jongmans, J. M., Schoemaker, M.M., Smits-Englesman, C. M. B. (2001): Clinical and research diagnostic criteria for developmental coordination disorder: a review and discussion. *Human Movement Science* 20, 7-47
16. Gheysen, F., Waelvelde, Van H., Fias, W. (2011): Impaired visuo – motor sequence learning in Developmental Coordination Disorder. *Research in Developmental Disabilities* 32, p. 749-756
17. Gligorovi , M., Radi Šesti , M., Nikoli , S., Ili Stošovi , D. (2011): Perceptual-motor abilities and prerequisites of academic skills. *Special education and rehabilitation* Vol.10, br.3. 405-434, Univerzitet u Beogradu – Fakultet za specijalnu edukaciju i rehabilitaciju Centar za izdava ku delatnost, Beograd
18. Green, D., Chambers, E. M., Sugden, A. D. (2008): Does subtype of developmental coordination disorder count: Is there a differential effect on outcome following intervention?. *Human Movement Science*, 27, p. 363–382
19. Hill, L. E., Khanem, F. (2009): The development of hand preference in children: The effect of task demands and links with manual dexterity. *Brain and Cognition* 71, p. 99–107
20. , „ , „ - , . (2005).
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21. , . (1986): .
22. Kaplan, J. B., Wilson, N. B., Dewey, D., Crawford, G. S. (1998): DCD may not be a discrete disorder. *Human Movement Science* 17, 471-490
23. , . (2002). : ,
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24. , . (2008): –
25. , , , . (1991): –
26. Macnab, J. J., Miller, T. L., Polatajko, J. H. (2001): The search for subtypes of DCD: Is cluster analysis the answer?. *Human Movement Science* 20, p. 49-72
27. Magalhaes, C.L., Cardoso, A.A., Missiuna, C. (2011): Activities and participation in children with developmental coordination disorder: A systematic review. *Research in Developmental Disabilities* 32, p. 1309–1316
28. Missiuna, C., Cairney, J., Pollock, N., Russell, D., Macdonald, K., Cousins, M., Veldhuizen, S., Schmidt, L. (2011): A staged approach for identifying children with developmental coordination disorder from the population. *Research in Developmental Disabilities* 32, p. 549–559

29. , . (2012):
30. Nikoli , J. S. & Ili Stošovi , D. (2009). Detection and prevalence of motor skill disorders. *Research in Developmental Disabilities* 30, 1281-1287
31. Oci , G. (1998): *Klini ka neuropsihologija*. Zavod za udžbenike i nastavna sredstva. Beograd.
32. Packiam Alloway, T. (2007): Working memory, reading, and mathematical skills in children with developmental coordination disorder. *Journal of Experimental Child Psychology* 96, p. 20–36
33. Piek, P. J., Barrett C. N., Smith, M. L., Rigoli, D., Gasson, N. (2010): Do motor skills in infancy and early childhood predict anxious and depressive symptomatology at school age?, *Human Movement Science* 29, p. 777–786
34. Pieters, S., Desoete, A., Van Waelvelde, H., Vanderswalmen, R., Roeyers, R. (2012): Mathematical problems in children with developmental coordination disorder. *Research in Developmental Disabilities* 33, p. 1128–1135
35. Pereira, S. H., Landgren, M., Gillberg, C., Forssberg, H. (2001): Parametric control of fingertip forces during precision grip lifts in children with DCD (developmental coordination disorder) and DAMP (deficits in attention motor control and perception). *Neuropsychologia* 39, p. 478–488
36. Polatajko, J. H., Cantin, N. (2006) Developmental Coordination Disorder (Dyspraxia): An Overview of the State of the Art. *Seminars in Pediatric Neurology* 12, 250-258
37. , V., . (2001):
38. Pozzo, T., Vernet, P., Creuzot-Garcher, C., Robichon, F., Bron, A., Quercia, P. (2006): Static postural control in children with developmental dyslexia. *Neuroscience Letters* 403, p. 211–215.
39. Prunty, M. M., Barnett, L. A., Wilmut, K., Plumb, S. M. (2013): Handwriting speed in children with Developmental Coordination Disorder: Are they really slower? *Research in Developmental Disabilities* 34. p. 2927–2936
40. Rosenblum, S., Regev, N. (2013): Timing abilities among children with developmental coordination disorders (DCD) in comparison to children with typical development. *Research in Developmental Disabilities* 34, p. 218–227
41. Schoemaker, M.M., Van Der Wees, M., Flapper, B., Varheij-Jansen, N., Scholten-Jaegers, S., Geuze, H.R. (2001): Perceptual skills of children with developmental coordination disorder, *Human Movement Science* 20, p. 111-133
42. Sinani, C., Sugden, A. D., Hill, L. E.(2011): Gesture production in school vs. clinical samples of children with Developmental Coordination Disorder (DCD) and typically developing children. *Research in Developmental Disabilities* 32, p. 1270–1282
43. Smits-Engelsman, B.C.M., Wilson, P.H., Westenberg Y., Duysens, J. (2003): Fine motor deficiencies in children with developmental coordination disorder and learning disabilities: An underlying open-loop control deficit. *Human Movement Science* 22, p. 495–513
44. Sugden D., Keogh J. (1990): *Problems in Movement Skill Development*, University of Sought Carolina
45. Toussaint-Thorin, M., Marchal, F., Benkhaled, O., Pradat-Diehl, P., Boyer, F.-C., Chevignard, M. (2013): Executive functions of children with developmental dyspraxia: Assessment combining neuropsychological and ecological tests. *Annals of Physical and Rehabilitation Medicine* 56, p. 268–287
46. Tse, F.L. L., Thanapalan, C. K., Chan, C.H.C. (2014): Visual-perceptual-kinesthetic inputs on influencing writing performances in children with handwriting difficulties. *Research in Developmental Disabilities* 35, p. 340–347
47. Vaivre-Douret, L. (2013): Developmental coordination disorder: State of art. Article in press, *Clinical Neurophysiology*

48. Venetsanou, F., Kambas, A., Ellinoudis, T., Fatouros, I., Giannakidou, D., Kourtessis, T. (2011): Can the Movement Assessment Battery for Children-Test be the “gold standard” for the motor assessment of children with Developmental Coordination Disorder? *Research in Developmental Disabilities* 32, p. 1–10
49. Vieira, S., Quercia, P., Michela, C., Pozzoa, T., Bonnetblanca, F. (2009): Cognitive demands impair postural control in developmental dyslexia: A negative effect that can be compensated. *Neuroscience Letters* 462, p. 125–129
50. Visser, J. (2003): Developmental coordination disorder: a review of research on subtypes and comorbidities. *Human Movement Science* 22, p. 479–493
51. Westendorp, M., Hartman, E., Houwen, S., Smith, J., Visscher, C. (2011): The relationship between gross motor skills and academic achievement in children with learning disabilities. *Research in Developmental Disabilities* 32, p. 2773–2779
52. Wilson, H. P. (2005): Practitioner Review: Approaches to assessment and treatment of children with DCD: an evaluative review. *Journal of Child Psychology and Psychiatry* 46: 8, pp 806-823
53. , . (1984.): . V .
54. Zwicker, G.J., Missiuna, C., Harris, R.S., Boyd, A. L. (2012): Developmental coordination disorder: A review and update, *European Journal of Paediatric Neurology* 16, p. 573 -581

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Име и презиме.....

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Име и презиме.....

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	13	0	$\frac{1}{2}$	1	
	14	0	$\frac{1}{2}$	1	
	15	0	$\frac{1}{2}$	1	
	16	0	$\frac{1}{2}$	1	
	17	0	$\frac{1}{2}$	1	
	18	0	$\frac{1}{2}$	1	
	19	0	$\frac{1}{2}$	1	
	20	0	$\frac{1}{2}$	1	
	1	0	$\frac{1}{2}$	1	
	2	0	$\frac{1}{2}$	1	
	3	0	$\frac{1}{2}$	1	-
	4	0	$\frac{1}{2}$	1	
	5	0	$\frac{1}{2}$	1	-
	6	0	$\frac{1}{2}$	1	
	7	0	$\frac{1}{2}$	1	
	8	0	$\frac{1}{2}$	1	
	9	0	$\frac{1}{2}$	1	
	10	0	$\frac{1}{2}$	1	
	11	0	$\frac{1}{2}$	1	
	12	0	$\frac{1}{2}$	1	
	13	0	$\frac{1}{2}$	1	
	14	0	$\frac{1}{2}$	1	
	15	0	$\frac{1}{2}$	1	
	16	0	$\frac{1}{2}$	1	
	17	0	$\frac{1}{2}$	1	
	18	0	$\frac{1}{2}$	1	
	19	0	$\frac{1}{2}$	1	
	20	0	$\frac{1}{2}$	1	

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Име и презиме.....

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()	0	1	,	
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(4 ,	0	1/2	1	
,)	0	1/2	1	,
4 (,)	0	1/2	1	
.				3/5
.			/	7/10
.			/	3/4
.			/	3/4
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. , ,10	0	1/2	1	, ,
. , ,10	0	1/2	1	, , ,
3 /	0	1/2	1	3 ,4
.	0	1		, ,
. ,	0	1		,
35 / 45	0	1/2	1	
15 ,	0	1		2 , 50
, 10	0	1		
	0	1/2	1	

				()
()	0	1		
	0	$\frac{1}{2}$	1	- 0,5 / 1 / 1,5 /
	0	$\frac{1}{2}$	1	0 / 1 / 2 /
	0	$\frac{1}{2}$	1	0 / 1 / 2 /
-	0	1/2	1	
- -	0	1/2	1	
	0	1/2	1	
				-
	0	$\frac{1}{2}$	1	
	0	$\frac{1}{2}$	1	
	0	$\frac{1}{2}$	1	
	0	$\frac{1}{2}$	1	
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:	0	1/2	1	
:	0	1/2	1	
:	0	1/2	1	
:	0	1/2	1	
:	0	1/2	1	
:	0	1/2	1	
:	0	1/2	1	
1	0	$\frac{1}{2}$	1	- - - - - - - -
2	0	$\frac{1}{2}$	1	
3	0	$\frac{1}{2}$	1	
4	0	$\frac{1}{2}$	1	
5	0	$\frac{1}{2}$	1	
6	0	$\frac{1}{2}$	1	
7	0	$\frac{1}{2}$	1	
8	0	$\frac{1}{2}$	1	

	9	0	$\frac{1}{2}$	1	
	10	0	$\frac{1}{2}$	1	
	11	0	$\frac{1}{2}$	1	
	12	0	$\frac{1}{2}$	1	
	13	0	$\frac{1}{2}$	1	
	14	0	$\frac{1}{2}$	1	
	15	0	$\frac{1}{2}$	1	
	16	0	$\frac{1}{2}$	1	
	17	0	$\frac{1}{2}$	1	
	18	0	$\frac{1}{2}$	1	
	19	0	$\frac{1}{2}$	1	
	20	0	$\frac{1}{2}$	1	
	1	0	$\frac{1}{2}$	1	
	2	0	$\frac{1}{2}$	1	
	3	0	$\frac{1}{2}$	1	-
	4	0	$\frac{1}{2}$	1	
	5	0	$\frac{1}{2}$	1	-
	6	0	$\frac{1}{2}$	1	
	7	0	$\frac{1}{2}$	1	
	8	0	$\frac{1}{2}$	1	
	9	0	$\frac{1}{2}$	1	
	10	0	$\frac{1}{2}$	1	
	11	0	$\frac{1}{2}$	1	
	12	0	$\frac{1}{2}$	1	
	13	0	$\frac{1}{2}$	1	
	14	0	$\frac{1}{2}$	1	
	15	0	$\frac{1}{2}$	1	
	16	0	$\frac{1}{2}$	1	
	17	0	$\frac{1}{2}$	1	
	18	0	$\frac{1}{2}$	1	
	19	0	$\frac{1}{2}$	1	
	20	0	$\frac{1}{2}$	1	

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31

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I	”	“	
II	”	“	
III	”	“	
IV	”	“	
		0	1
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	2.		
	3.		
	4.		
	5.		
	6.		
	7.		
	8.		
()	1.		
	2.		
	3.		
	4.		
	5.		
	6.		
()	1.		
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	3.		
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	7. „		
	1.		
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	3.		
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	5.		
	6.		
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	(I, II, III, IV)			
	(I, II, III, IV)			
	(II, III, IV)			
	(II, III, IV)			
	(,)	0	1	
	(,)			
	-			
()	(I, II, III, IV)			
	(I, II, III, IV)			
	(II, III, IV)			
	(II, III, IV)			
	(I, II, III, IV)			
	(I, II, III, IV)			
	(II, III, IV)			
	(II, III, IV)			
()	() (I, II, III, IV)			
	() (I, II, III, IV)			
	() (II, III, IV)			
	() (II, III, IV)			
	() (II, III, IV)			
	() (II, III, IV)			
	() (II, III, IV)			
	() (II, III, IV)			
	() (II, III, IV)			
	() (II, III, IV)			
	I			
	II			

()				
	1. , =, <, > 2. 3. 4. 5.			

3.

I

1. _____ ,
 69 _____
 12 _____
 30 _____
 8 _____
 17 _____

4 _____ , 7 _____
 8 _____

2. _____ <, >, =
 19 96 18 3 20 12
 15 15 9 6 100 10

3. 32, 3, 12, 18, 89, 96, 100, 57, 6, 27 .

4. _____ 6 _____ . 8
 ? ?

5. 36^0 . 38^0 . ?

6. 6 . 5 9 . ?

7. $14+3=17$. $3+14?$?

1.

_____	_____
_____	_____
_____	_____
_____	_____

2.

6	6	_____	8	10	_____	9	8	_____
19	9	_____						
48	3		_____	36	5			_____

3.

$6+3=$ _____	$4+$ _____ $=9$	_____ $+ 3=8$
$8-6=$ _____	$7-$ _____ $=0$	_____ $- 9=1$
$12+4=$ _____	$18+$ _____ $=20$	_____ $+14=19$
$18-4=$ _____	$20-$ _____ $=13$	_____ $- 12=4$

1.

$3+5=$	$4+2=$	$9+1=$	$7+3=$	$8+2=$	$3+5=$	$7+2=$
$9+0=$	$2+5=$	$4+4=$	$2+6=$	$6+1=$	$1+4=$	$3+4=$
$5+2=$	$8+1=$	$6+3=$	$2+6=$	$1+5=$	$2+3=$	$7+1=$
$4+6=$	$0+3=$	$4+5=$	$1+2=$	$2+2=$	$3+7=$	$9+1=$
$6+3=$	$5+5=$	$6+4=$	$7+1=$	$4+2=$	$5+5=$	$6+3=$
$0+8=$	$9+1=$	$7+2=$	$9+0=$	$3+6=$		

2.

$5-3=$	$9-4=$	$7-2=$	$3-1=$	$8-6=$	$4-4=$	$9-3=$
$7-3=$	$6-4=$	$4-3=$	$9-5=$	$9-6=$	$5-4=$	$4-1=$
$6-1=$	$9-2=$	$8-5=$	$3-2=$	$10-4=$	$1-0=$	$7-6=$
$5-1=$	$6-5=$	$9-7=$	$7-1=$	$8-2=$	$10-8=$	$6-3=$
$6-4=$	$10-3=$	$10-7=$	$5-1=$	$8-5=$	$10-2=$	$8-6=$
$1-1=$	$3-1=$	$9-7=$	$7-1=$	$2-1=$		

II

1. _____ , _____
 69 _____
 102 _____
 30 _____
 8 _____
 97 _____
 e _____
 4 _____ , 7 a _____
 8 _____

2. _____ <, >, =

109	96	91	93	20	12	139	931
15	15	69	96	100	10	771	71

3. 32, 3, 12, 38, 89, 96, 100, 57, 96, 77 .

4. _____ 6 _____ 8
 ? ?

5. 36^0 . 38^0 . ?

6. 56 . 5 9 . ?

7. $24+31=55$. $31+24=?$?

1. _____

2. _____

6	46	80	105	9	89
29	9	16		81	9
48	3		36	5	

3. $16+3=$ _____ $4+ =95$ _____ $+ 23 =68$
 $98 - 26 =$ _____ $57 - = 0$ _____ $- 9 = 1$
 $12 + 4 =$ _____ $18 + = 20$ _____ $+14 = 19$
 $78 - 64 =$ _____ $20 - = 13$ _____ $- 12 = 4$

1.

$3 + 5 =$	$4 + 2 =$	$9 + 1 =$	$7 + 3 =$	$8 + 2 =$	$3 + 5 =$	$7 + 2 =$
$9 + 0 =$	$2 + 5 =$	$4 + 4 =$	$2 + 6 =$	$6 + 1 =$	$1 + 4 =$	$3 + 4 =$
$5 + 2 =$	$8 + 1 =$	$6 + 3 =$	$2 + 6 =$	$1 + 5 =$	$2 + 3 =$	$7 + 1 =$
$4 + 6 =$	$0 + 3 =$	$4 + 5 =$	$1 + 2 =$	$2 + 2 =$	$3 + 7 =$	$9 + 1 =$
$6 + 3 =$	$5 + 5 =$	$6 + 4 =$	$7 + 1 =$	$4 + 2 =$	$5 + 5 =$	$6 + 3 =$
$0 + 8 =$	$9 + 1 =$	$7 + 2 =$	$9 + 0 =$	$3 + 6 =$		

2.

$5 - 3 =$	$9 - 4 =$	$7 - 2 =$	$3 - 1 =$	$8 - 6 =$	$4 - 4 =$	$9 - 3 =$
$7 - 3 =$	$6 - 4 =$	$4 - 3 =$	$9 - 5 =$	$9 - 6 =$	$5 - 4 =$	$4 - 1 =$
$6 - 1 =$	$9 - 2 =$	$8 - 5 =$	$3 - 2 =$	$10 - 4 =$	$1 - 0 =$	$7 - 6 =$
$5 - 1 =$	$6 - 5 =$	$9 - 7 =$	$7 - 1 =$	$8 - 2 =$	$10 - 8 =$	$6 - 3 =$
$6 - 4 =$	$10 - 3 =$	$10 - 7 =$	$5 - 1 =$	$8 - 5 =$	$10 - 2 =$	$8 - 6 =$
$1 - 1 =$	$3 - 1 =$	$9 - 7 =$	$7 - 1 =$	$2 - 1 =$		

3.

$3 \cdot 6 =$	$8 \cdot 3 =$	$9 \cdot 2 =$	$1 \cdot 6 =$	$7 \cdot 4 =$	$2 \cdot 6 =$	$9 \cdot 3 =$
$6 \cdot 4 =$	$5 \cdot 8 =$	$3 \cdot 2 =$	$9 \cdot 2 =$	$4 \cdot 8 =$	$1 \cdot 6 =$	$7 \cdot 3 =$
$7 \cdot 7 =$	$3 \cdot 3 =$	$5 \cdot 9 =$	$2 \cdot 7 =$	$6 \cdot 8 =$	$7 \cdot 8 =$	$9 \cdot 7 =$
$6 \cdot 7 =$	$8 \cdot 2 =$	$9 \cdot 8 =$	$5 \cdot 5 =$	$4 \cdot 3 =$	$6 \cdot 7 =$	$7 \cdot 1 =$
$8 \cdot 8 =$	$3 \cdot 5 =$	$10 \cdot 7 =$	$4 \cdot 2 =$	$5 \cdot 4 =$	$6 \cdot 1 =$	$3 \cdot 6 =$
$10 \cdot 1 =$	$6 \cdot 2 =$	$8 \cdot 8 =$	$0 \cdot 4 =$	$9 \cdot 9 =$		

4.

$72:8 =$	$2:2 =$	$90:10 =$	$48:6 =$	$32:4 =$	$45:5 =$	$6:3 =$
$64:8$	$10:5 =$	$28:7 =$	$81:9 =$	$8:4 =$	$100:10 =$	$5:5 =$
$36:4 =$	$21:7 =$	$63:7 =$	$36:9 =$	$3:3 =$	$24:4 =$	$8:1 =$
$6:2 =$	$56:7 =$	$9:3 =$	$40:5 =$	$12:3 =$	$16:4 =$	$15:3 =$
$8:2 =$	$60:10 =$	$25:5 =$	$18:2 =$	$24:8 =$	$63:9 =$	$8:1 =$
$10:5 =$	$80:10 =$	$45:5 =$	$21:7 =$	$27:3 =$		

III

1. _____ ,
 699 _____
 1002 _____
 30 _____
 8 _____
 927 _____

4 _____ , 7
 3 8 9 _____

2. _____ <, >, =
 129 396 921 923 20 302 139 931
 15 15 69 96 1000 112 771 71

3. 2232, 3, 12, 308, 189, 906, 1000, 57, 96, 707 .

4. ? ? ⁶ . 8

5. 36⁰ . 38⁰ . ?

6. 56 . 5 9 . ?

7. 246+312=558. 312+246?
 ?

1. _____

2. 60 46 _____ 8 205 _____ 90 89 _____
 29 9 _____ 76 _____ 140 4 _____
 468 3 _____ 983 5 _____

3. 386+39= _____ 284+ _____ =392 _____ + 3 0=802
 832 - 659 = _____ 7 - _____ = 0 _____ - 9 = 1
 129 + 4 = _____ 318 + _____ = 1200 _____ +140 = 190
 180 - 43 = _____ 20 - _____ = 13 _____ - 12 = 400

1.

$3 + 5 =$	$4 + 2 =$	$9 + 1 =$	$7 + 3 =$	$8 + 2 =$	$3 + 5 =$	$7 + 2 =$
$9 + 0 =$	$2 + 5 =$	$4 + 4 =$	$2 + 6 =$	$6 + 1 =$	$1 + 4 =$	$3 + 4 =$
$5 + 2 =$	$8 + 1 =$	$6 + 3 =$	$2 + 6 =$	$1 + 5 =$	$2 + 3 =$	$7 + 1 =$
$4 + 6 =$	$0 + 3 =$	$4 + 5 =$	$1 + 2 =$	$2 + 2 =$	$3 + 7 =$	$9 + 1 =$
$6 + 3 =$	$5 + 5 =$	$6 + 4 =$	$7 + 1 =$	$4 + 2 =$	$5 + 5 =$	$6 + 3 =$
$0 + 8 =$	$9 + 1 =$	$7 + 2 =$	$9 + 0 =$	$3 + 6 =$		

2.

$5 - 3 =$	$9 - 4 =$	$7 - 2 =$	$3 - 1 =$	$8 - 6 =$	$4 - 4 =$	$9 - 3 =$
$7 - 3 =$	$6 - 4 =$	$4 - 3 =$	$9 - 5 =$	$9 - 6 =$	$5 - 4 =$	$4 - 1 =$
$6 - 1 =$	$9 - 2 =$	$8 - 5 =$	$3 - 2 =$	$10 - 4 =$	$1 - 0 =$	$7 - 6 =$
$5 - 1 =$	$6 - 5 =$	$9 - 7 =$	$7 - 1 =$	$8 - 2 =$	$10 - 8 =$	$6 - 3 =$
$6 - 4 =$	$10 - 3 =$	$10 - 7 =$	$5 - 1 =$	$8 - 5 =$	$10 - 2 =$	$8 - 6 =$
$1 - 1 =$	$3 - 1 =$	$9 - 7 =$	$7 - 1 =$	$2 - 1 =$		

3.

$3 \cdot 6 =$	$8 \cdot 3 =$	$9 \cdot 2 =$	$1 \cdot 6 =$	$7 \cdot 4 =$	$2 \cdot 6 =$	$9 \cdot 3 =$
$6 \cdot 4 =$	$5 \cdot 8 =$	$3 \cdot 2 =$	$9 \cdot 2 =$	$4 \cdot 8 =$	$1 \cdot 6 =$	$7 \cdot 3 =$
$7 \cdot 7 =$	$3 \cdot 3 =$	$5 \cdot 9 =$	$2 \cdot 7 =$	$6 \cdot 8 =$	$7 \cdot 8 =$	$9 \cdot 7 =$
$6 \cdot 7 =$	$8 \cdot 2 =$	$9 \cdot 8 =$	$5 \cdot 5 =$	$4 \cdot 3 =$	$6 \cdot 7 =$	$7 \cdot 1 =$
$8 \cdot 8 =$	$3 \cdot 5 =$	$10 \cdot 7 =$	$4 \cdot 2 =$	$5 \cdot 4 =$	$6 \cdot 1 =$	$3 \cdot 6 =$
$10 \cdot 1 =$	$6 \cdot 2 =$	$8 \cdot 8 =$	$0 \cdot 4 =$	$9 \cdot 9 =$		

4.

$72:8=$	$2:2=$	$90:10=$	$48:6=$	$32:4=$	$45:5=$	$6:3=$
$64:8=$	$10:5=$	$28:7=$	$81:9=$	$8:4=$	$100:10=$	$5:5=$
$36:4=$	$21:7=$	$63:7=$	$36:9=$	$3:3=$	$24:4=$	$8:1=$
$6:2=$	$56:7=$	$9:3=$	$40:5=$	$12:3=$	$16:4=$	$15:3=$
$8:2=$	$60:10=$	$25:5=$	$18:2=$	$24:8=$	$63:9=$	$8:1=$
$10:5=$	$80:10=$	$45:5=$	$21:7=$	$27:3=$		

IV

1. _____ , _____
 699 _____
 5602 _____
 30 _____
 8 _____
 9007 _____

4	,	7	5	<u> </u>
3		8	9	<u> </u>

2.				<, >, =			
129	396	921	923	20	302	771	71
15	15	69	96	1028	1128	1390	931

3. 232, 3, 12, 308, 189, 6906, 1000, 57, 96, 707 .

4. $\frac{6}{?} = \frac{?}{8}$.

5. 36^0 . 38^0 . ?

6. 56 . 5 9 . ?

7. $246+312=558$. $312+246=$?

1.

[illegible]

2.

60	46	_____	8	205	_____	90	89	_____
29	9	_____	76	_____	140		4	_____
468	3	_____		983	5	_____		

3.

$3386 + 3958 = \underline{\hspace{2cm}}$	$284 + \underline{\hspace{1cm}} = 392$	$\underline{\hspace{1cm}} + 30 = 2802$
$832 - 659 = \underline{\hspace{2cm}}$	$7926 - \underline{\hspace{1cm}} = 0$	$\underline{\hspace{1cm}} - 9 = 1$
$1029 + 409 = \underline{\hspace{2cm}}$	$318 + \underline{\hspace{1cm}} = 2000$	$\underline{\hspace{1cm}} + 140 = 19990$
$180 - 43 = \underline{\hspace{2cm}}$	$200 - \underline{\hspace{1cm}} = 13$	$\underline{\hspace{1cm}} - 12 = 400$

1.

$3 + 5 =$	$4 + 2 =$	$9 + 1 =$	$7 + 3 =$	$8 + 2 =$	$3 + 5 =$	$7 + 2 =$
$9 + 0 =$	$2 + 5 =$	$4 + 4 =$	$2 + 6 =$	$6 + 1 =$	$1 + 4 =$	$3 + 4 =$
$5 + 2 =$	$8 + 1 =$	$6 + 3 =$	$2 + 6 =$	$1 + 5 =$	$2 + 3 =$	$7 + 1 =$
$4 + 6 =$	$0 + 3 =$	$4 + 5 =$	$1 + 2 =$	$2 + 2 =$	$3 + 7 =$	$9 + 1 =$
$6 + 3 =$	$5 + 5 =$	$6 + 4 =$	$7 + 1 =$	$4 + 2 =$	$5 + 5 =$	$6 + 3 =$
$0 + 8 =$	$9 + 1 =$	$7 + 2 =$	$9 + 0 =$	$3 + 6 =$		

2.

$5 - 3 =$	$9 - 4 =$	$7 - 2 =$	$3 - 1 =$	$8 - 6 =$	$4 - 4 =$	$9 - 3 =$
$7 - 3 =$	$6 - 4 =$	$4 - 3 =$	$9 - 5 =$	$9 - 6 =$	$5 - 4 =$	$4 - 1 =$
$6 - 1 =$	$9 - 2 =$	$8 - 5 =$	$3 - 2 =$	$10 - 4 =$	$1 - 0 =$	$7 - 6 =$
$5 - 1 =$	$6 - 5 =$	$9 - 7 =$	$7 - 1 =$	$8 - 2 =$	$10 - 8 =$	$6 - 3 =$
$6 - 4 =$	$10 - 3 =$	$10 - 7 =$	$5 - 1 =$	$8 - 5 =$	$10 - 2 =$	$8 - 6 =$
$1 - 1 =$	$3 - 1 =$	$9 - 7 =$	$7 - 1 =$	$2 - 1 =$		

3.

$3 \cdot 6 =$	$8 \cdot 3 =$	$9 \cdot 2 =$	$1 \cdot 6 =$	$7 \cdot 4 =$	$2 \cdot 6 =$	$9 \cdot 3 =$
$6 \cdot 4 =$	$5 \cdot 8 =$	$3 \cdot 2 =$	$9 \cdot 2 =$	$4 \cdot 8 =$	$1 \cdot 6 =$	$7 \cdot 3 =$
$7 \cdot 7 =$	$3 \cdot 3 =$	$5 \cdot 9 =$	$2 \cdot 7 =$	$6 \cdot 8 =$	$7 \cdot 8 =$	$9 \cdot 7 =$
$6 \cdot 7 =$	$8 \cdot 2 =$	$9 \cdot 8 =$	$5 \cdot 5 =$	$4 \cdot 3 =$	$6 \cdot 7 =$	$7 \cdot 1 =$
$8 \cdot 8 =$	$3 \cdot 5 =$	$10 \cdot 7 =$	$4 \cdot 2 =$	$5 \cdot 4 =$	$6 \cdot 1 =$	$3 \cdot 6 =$
$10 \cdot 1 =$	$6 \cdot 2 =$	$8 \cdot 8 =$	$0 \cdot 4 =$	$9 \cdot 9 =$		

4.

$72:8 =$	$2:2 =$	$90:10 =$	$48:6 =$	$32:4 =$	$45:5 =$	$6:3 =$
$64:8$	$10:5 =$	$28:7 =$	$81:9 =$	$8:4 =$	$100:10 =$	$5:5 =$
$36:4 =$	$21:7 =$	$63:7 =$	$36:9 =$	$3:3 =$	$24:4 =$	$8:1 =$
$6:2 =$	$56:7 =$	$9:3 =$	$40:5 =$	$12:3 =$	$16:4 =$	$15:3 =$
$8:2 =$	$60:10 =$	$25:5 =$	$18:2 =$	$24:8 =$	$63:9 =$	$8:1 =$
$10:5 =$	$80:10 =$	$45:5 =$	$21:7 =$	$27:3 =$		

4.

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2. ?

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14.	,	(,	,	

11. _____ (_____ , _____ , _____ , _____ , _____ ...)?

12. _____ ?
- _____
 - _____ (_____) _____
 - _____
