Steady Steps Maths

FREE UNIT TEST · TOPIC 9

FREE SAMPLE · UNIT TEST A

Equations & Inequalities

Unit Test A · 40 marks · about 40 minutes

GRADE 6



Common Core 6.EE.B.5–8, 6.EE.C.9

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Name _____ Date _____

UNIT TEST A

Equations & Inequalities

40 marks · about 40 minutes · Common Core 6.EE.B.5–8, 6.EE.C.9

Name _____ **Date** _____

Instructions

- Answer **every** question in the space given.
- Show your working: in Sections B and C you get marks for your method, even if the final answer is wrong.
- The number in brackets, like [2], shows how many marks a question is worth.
- You have about 40 minutes. A calculator is **not** needed.
- Check your answers if you finish early.

Your score

Section	Questions	Marks	Your score
A · Quick questions	1–10	10	
B · Show your working	11–16	17	
C · Problem solving	17–18	13	
Total		**40**	

Percentage: _____ % 85%+ excellent · 65–84% good · 45–64% keep practising · below 45% revise the packs first

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SECTION A Quick questions

1 mark each · write your answer in the box

1. Solve $x + 5 = 21$. [1]

Answer

2. Solve $y - 16 = 17$. [1]

Answer

3. Solve $3m = 36$. [1]

Answer

4. Solve $k \div 9 = 6$. [1]

Answer

5. Is $n = 10$ a solution of $9n = 81$? Write yes or no. [1]

Answer

6. Write an inequality for "you must be at least 14 years old" (use a). [1]

Answer

7. Which of these are solutions of $x > 4$? 2, 4, 5, 6 [1]

Answer

8. Write an inequality for "fewer than 20 seats are left" (use s). [1]

Answer

9. In "the cost depends on the number of hours", which is the independent variable? [1]

Answer

10. The rule is $y = 5x$. Find y when $x = 7$. [1]

Answer

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SECTION B

Show your working

Marks are given for your method

11 Solve 2.25p = 9. Check your answer. [2]

Answer

12 Rana has 53 stickers. She wants 98. Write an equation for the number she still needs, s, and solve it. [3]

Answer

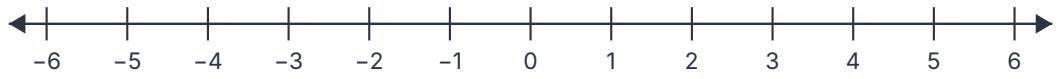
13 6 friends share a bill of 45 equally. Write an equation for each person's share, c, and solve it. [3]

Answer

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14 Draw $x \geq 1$ on the number line. [2]



Answer

15 A lift can carry at most 300 kg. [3]
(a) Write an inequality for the mass m it can carry. (b) Can it carry 200 kg? Explain.

Answer

16 Write an equation for the table, then find y when x = 10. [4]

x	1	2	3	6
y	5	6	7	10

Answer

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SECTION C Problem solving

Longer questions with several steps

17 Omar earns 8 for every hour he works. [7]
(a) Complete the table. (b) Write an equation for his pay p after h hours.
(c) Which is the independent variable? (d) How many hours must he work to earn 72? Write and solve an equation.

hours (h)	1	2	3	5
pay (p)	8			

Answer

18 A ride is for children who are at least 100 cm tall. A bag on a plane must weigh less than 16 kg. [6]
(a) Write an inequality for each. Use h for height and w for weight.
(b) Is a child who is 100 cm tall allowed on? Explain.
(c) Is a bag of exactly 16 kg allowed? Explain.

Answer

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Mark scheme

For parents · give the marks shown; method marks can be given even if the final answer is wrong

Tip: Give method marks generously when the working shows the right idea. If a mistake early on is carried through correctly, give the later marks.

Q	Answer	Marks	How to award the marks
1	x = 16	1	
2	y = 33	1	
3	m = 12	1	
4	k = 54	1	
5	no	1	9 × 10 = 90.
6	a ≥ 14	1	
7	5, 6	1	
8	s < 20	1	
9	the number of hours	1	
10	35	1	
11	p = 4	2	1 mark for dividing both sides by 2.25; 1 mark for the answer.
12	53 + s = 98; s = 45	3	1 mark for the equation; 1 mark for the inverse operation; 1 mark for the answer.
13	6c = 45; c = 7.5	3	1 mark for the equation; 1 mark for dividing; 1 mark for the answer.
14	closed circle at 1, arrow to the right	2	1 mark for the correct circle; 1 mark for the direction.
15	(a) m ≤ 300 (b) yes: 200 ≤ 300	3	(a) 2 marks: 1 for the symbol ≤, 1 for the number. (b) 1 mark with a reason.
16	y = x + 4; y = 14	4	2 marks for the equation (1 mark for noticing y is always 4 more than x); 2 marks for y = 14 (1 for substituting).
17	(a) 16, 24, 40 (b) p = 8h (c) hours (d) 8h = 72, h = 9	7	(a) 2 marks (1 for two correct). (b) 2 marks. (c) 1 mark. (d) 2 marks: 1 for the equation, 1 for the answer.
18	(a) h ≥ 100; w < 16 (b) yes, equal is allowed (≥) (c) no, it must be less than 16	6	(a) 2 marks: 1 each. (b) 2 marks: 1 for the answer, 1 for the reason. (c) 2 marks.

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What to revise

Circle the questions your child lost marks on, then go back to the matching part of the pack

Questions	Skill	Revise in	✓ / ×
1, 2	Solve with + and −	Pack 1 · One-Step Equations, Part 2	
3, 4, 11	Solve with × and ÷	Pack 1 · One-Step Equations, Part 3	
5	Is it a solution?	Pack 1 · One-Step Equations, Part 1	
6, 8, 15	Write an inequality	Pack 2 · Inequalities, Part 2	
7	Is it a solution?	Pack 2 · Inequalities, Part 1	
9	Independent and dependent	Pack 3 · Variables & Relationships, Part 1	
10	Using an equation	Pack 3 · Variables & Relationships, Part 2	
12, 13	Write and solve	Pack 1 · One-Step Equations, Part 4	
14	Graph an inequality	Pack 2 · Inequalities, Part 3	
16	Write the equation	Pack 3 · Variables & Relationships, Part 3	
17	Variables, tables and equations	Pack 3 · Variables & Relationships, Part 2–3 and Pack 1 · One-Step Equations, Part 4	
18	Inequalities in real life	Pack 2 · Inequalities, Part 1–2	

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