

1.1 Equations that Describe Patterns

Answers

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|-----------------|----------------|------------------|-------------|----------------|
| 1. $x + 3 + 3$ | 2. -15 | 3. $+7$ | 4. $\div 4$ | 5. $x + 4 - 1$ |
| 6. $\div 3$ | 7. $X + 3 + 1$ | 8. $X + 5 + 1$ | 9. $X + 6$ | 10. -10 |
| 11. $x + 2 - 1$ | 12. $\div 3$ | 13. $\div 2 - 1$ | 14. $X + 7$ | 15. $\div 3$ |

1.2 Extend Numerical Patterns

Answers

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|-----------|-------------|-----------|-----------|--------------|
| 1. 6, 7 | 2. 10, 12 | 3. 47, 95 | 4. 12, 15 | 5. 1 |
| 6. 38, 78 | 7. 25, 12.5 | 8. 50, 60 | 9. 60, 75 | 10. 136, 148 |
| 11. 7 | 12. 13 | 13. 5 | 14. 6.25 | 15. 10.5 |

1.3 Visual Patterns

Answers

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|----------------|------------------|----------------|---------------|----------------------------|
| 1. $x + 2 - 1$ | 2. -10 | 3. $X + 2 + 5$ | 4. $\div 10$ | 5. 49 |
| 6. 136 | 7. 91 | 8. 1 | 9. A triangle | 10. 20 dots |
| 11. 9 dots | 12. 10 triangles | 13. a square | 14. 3 squares | 15. $2\frac{1}{4}$ circles |

1.4 Single Variable Expressions

Answers

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|--------|--------|--------|--------|--------|
| 1. 3 | 2. 54 | 3. 99 | 4. 25 | 5. 36 |
| 6. 18 | 7. 54 | 8. 107 | 9. 34 | 10. 78 |
| 11. 39 | 12. 14 | 13. 48 | 14. 84 | 15. 48 |

1.5 Expressions with One or More Variables

Answers

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|--------|--------|--------|--------|
| 1. 24 | 2. 20 | 3. 39 | 4. 48 |
| 5. 132 | 6. 100 | 7. 40 | 8. 35 |
| 9. 65 | 10. 85 | 11. 2 | 12. 4 |
| 13. 6 | 14. 6 | 15. 10 | 16. 46 |

1.6 Expressions for Real Life Situations

Answers

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|----------------|---------------|------------------|---------------|---------------|
| 1. $19 - n$ | 2. $4x - 4$ | 3. $n + 30$ | 4. $3x + 12$ | 5. $x/7$ |
| 6. $(x + 7)/2$ | 7. $16x$ | 8. $x/8$ | 9. $2(x + 7)$ | 10. $(x+5)/5$ |
| 11. $22 - n$ | 12. $3x - 17$ | 13. 48 mysteries | 14. 12 | 15. \$70.00 |

1.7 Whole Number Exponents

Answers

1. $b = 4, e = 5$ $4 \times 4 \times 4 \times 4 \times 4$
2. $b = 3, e = 2$ 3×3
3. $b = 5, e = 8$ $5 \times 5 \times 5 \times 5 \times 5 \times 5 \times 5 \times 5$
4. $b = 4, e = 3$ $4 \times 4 \times 4$
5. $b = 6, e = 3$ $6 \times 6 \times 6$
6. $b = 2, e = 5$ $2 \times 2 \times 2 \times 2 \times 2$
7. $b = 1, e = 10$ $1 \times 1 \times 1 \times 1 \times 1 \times 1 \times 1 \times 1 \times 1 \times 1$
8. $b = 2, e = 4$ $2 \times 2 \times 2 \times 2$
9. $b = 3, e = 4$ $3 \times 3 \times 3 \times 3$
10. $b = 5, e = 2$ 5×5
11. $b = 4, e = 4$ $4 \times 4 \times 4 \times 4$
12. $b = 8, e = 10$ $8 \times 8 \times 8 \times 8 \times 8 \times 8 \times 8 \times 8 \times 8 \times 8$
13. $b = 9, e = 3$ $9 \times 9 \times 9$
14. $b = 12, e = 2$ 12×12
15. $b = 13, e = 3$ $13 \times 13 \times 13$

1.8 Algebraic Expressions with Exponents

Answers

1. 8	2. 16	3. 25	4. 1	5. 125
6. 64	7. 27	8. 25	9. 129	10. 44
11. 11	12. 12	13. 80	14. m^7	15. x^7
16. y^8	17. b^9	18. a^7	19. x^{12}	20. y^9
21. x^8	22. y^{15}	23. a^{20}	24. x^{16}	25. b^{12}

1.9 Numerical Expression Evaluation with Basic Operations

Answers

1. 17	2. 27	3. 5	4. 14	5. 23
6. 12	7. 29	8. 29	9. 14	10. 34
11. 23	12. 55	13. 15	14. 50	15. 54

1.10 Expression Evaluation with Powers and Grouping Symbols

Answers

1. 18	2. 11	3. 15	4. 80	5. 16
6. 14	7. 27	8. 25	9. 36	10. 11
11. 13	12. 147	13. True	14. False	15. False

1.11 Mental Math for Addition/Subtraction Equations

Answers

1. 5	2. 5	3. 13	4. 5	5. 22
6. 12	7. 4	8. 15	9. 6	10. 12
11. 12	12. 5	13. 7	14. 7	15. 42
16. 14	17. 28	18. 3	19. 7	20. 16

1.12 Mental Math for Multiplication/Division Equations

Answers

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|--------|--------|--------|--------|--------|
| 1. 5 | 2. 8 | 3. 9 | 4. 7 | 5. 4 |
| 6. 2 | 7. 2 | 8. 3 | 9. 6 | 10. 20 |
| 11. 33 | 12. 60 | 13. 56 | 14. 72 | 15. 36 |

1.13 Appropriate Tools for Measurement of Squares and Rectangles

Answers

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|-----------------------|-----------------------|------------------------|----------------------|
| 1. feet/meters | 2. Centimeters/inches | 3. Feet/meters | 4. Feet/meters |
| 5. kilometers/miles | 6. Inches/centimeters | 7. Feet/meters | 8. |
| Centimeters/inches | | | |
| 9. centimeters/inches | 10. Feet/meters | 11. Inches/centimeters | 12. Feet/meters |
| 13. feet/meters | 14. Kilometers/miles | 15. Kilometers/miles | 16. Kilometers/miles |

1.14 Area and Perimeter of Rectangles

Answers

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|--|---|
| 1. $P = 30$ in. $A = 50$ in ² | 2. $P = 40$ ft. $A = 96$ ft ² |
| 3. $P = 32$ ft. $A = 55$ ft. ² | 4. $P = 70$ mi. $A = 306$ mi ² |
| 5. $P = 84$ ft $A = 440$ ft ² | 6. $P = 28$ cm $A = 48$ cm ² |
| 7. $P = 74$ cm $A = 340$ cm ² | 8. $P = 10$ ft $A = 6$ ft ² |
| 9. $P = 52$ yds $A = 165$ yds ² | 10. $P = 32$ yds $A = 60$ yds ² |
| 11. $P = 24$ ft $A = 36$ ft ² | 12. $P = 32$ ft. $A = 64$ ft ² |
| 13. $P = 36$ in. $A = 81$ in ² | 14. $P = 16$ in $A = 16$ in ² |
| 15. $P = 48$ in. $A = 144$ in ² | 16. $P = 28$ ft $A = 49$ ft ² |
| 17. $P = 20$ cm $A = 25$ cm ² | 18. $P = 12$ m $A = 9$ m ² |
| 19. $P = 40$ m $A = 100$ m ² | 20. $P = 44$ yds $A = 121$ yds ² |

1.15 Unknown Dimensions Using Formulas

Answers

1. 4 ft 2. 8 m 3. 10 miles 4. 11 inches 5. 12 ft
6. 6 ft 7. 4 ft 8. 6.4 ft 9. 3 m 10. 10 ft
11. 2 inches 12. 12 inches 13. 16 inches 14. 22.5 inches 15. 8.75 ft.

1.16 Problem Solving Models

Answers

1. 7 2. 124 pounds 3. 1 meter 4. \$1.50 per ride 5. 5 rows
6. 119 sq. ft 7. 152 miles per day 8. 57 points 9. \$6.25 sandwich 10. $l = 9$ meters
11 – 15 Answers will vary

1.17 Comparison of Problem Solving Models

Answers

1. \$43.75 2. 224 3. 40 ft.
4. 39 rows 5. Yes, both are smaller than 14 inches 6. Ned = 416, Ella = 208, Peter = 104
7. \$8.00 per hour 8. 40.5 pounds 9. Figure A
10. 280 miles 11. 5 12. \$24.00
13. 87 people 14. 116 people 15. 106 people