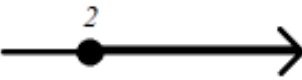




Answer Key 1

1.1: 1, 13, 22, 31, 32, 39, 41, 51, 55, 63, 64, 76, 87

1.2: 15, 16, 25, 34, 40, 45, 50, 62, 67, 76, 79, 85, 88, 100

1.1

<p>1) (Note these are just examples)</p> <p>a) 5</p> <p>b) -7</p> <p>c) $\frac{3}{4}$</p> <p>d) $\sqrt{2}$</p>	<p>13)</p> <p>$(x + 2y) + 3z = x + (2y + 3z)$</p> <p>The Associative Property of Addition</p>
<p>22) Distributive Property,</p> <p>$(5x + 5y) = 5(x + y)$</p>	<p>31) a) $\frac{2}{3} \left(6 - \frac{3}{2} \right) = \frac{2}{3} \cdot 6 - \frac{2}{3} \cdot \frac{3}{2} = 4 - 1 = 3$</p> <p>b) $\left(3 + \frac{1}{4} \right) \left(1 - \frac{4}{5} \right) = \frac{13}{4} \cdot \frac{1}{5} = \frac{13}{20}$</p>
<p>32)a) $\frac{2}{\frac{2}{3}} - \frac{3}{2} = \frac{6}{2} - \frac{1}{3} = 3 - \frac{1}{3} = \frac{8}{3}$</p> <p>(Note: improper fractions are your friend)</p> <p>b) $\frac{\frac{2}{1} + \frac{1}{3}}{\frac{10}{10} + \frac{2}{15}} = \frac{\frac{2}{1} + \frac{1}{3}}{\frac{1}{10} + \frac{1}{5}} = \frac{\frac{9}{3}}{\frac{3}{10}} = \frac{9}{3} \cdot \frac{10}{3} = 3$</p>	<p>39)</p> <p>a) $x > 0$</p> <p>b) $t < 4$</p> <p>c) $a \geq \pi$</p> <p>d) $-5 < x < \frac{1}{3}$ or $x < \frac{1}{3}$ and $x > -5$</p> <p>e) $p - 3 \leq 5$</p>
<p>41)</p> <p>a) $A \cup B = \{1, 2, 3, 4, 5, 6, 7, 8\}$</p> <p>b) $A \cap B = \{2, 4, 6\}$</p>	<p>51)</p> <p>$[2, \infty)$</p> <p>$x \geq 2$</p> 
<p>55)</p> <p>$-2 < x \leq 1$</p> <p>$(-2, 1]$</p> 	<p>63)</p> <p>$[-4.6] \cap [0, 8) = [0, 6]$</p> 

64)

$$[-4, 6) \cup [0, 8) = [-4, 8)$$



76)

$$\left| \frac{7}{15} - \frac{-1}{21} \right| = \left| \frac{49}{105} + \frac{5}{105} \right| = \left| \frac{54}{105} \right| = \frac{54}{105} =$$

$$\frac{2 \cdot 3 \cdot 3 \cdot 3}{3 \cdot 5 \cdot 7} = \frac{2 \cdot 3 \cdot 3}{5 \cdot 7} = \frac{18}{35}$$

87)

$$L + 2(x + y) \leq 108$$

a)

$$5(12) + 2(6 + 8) = 60 + 28 = 88 \leq 108$$

Yes, it will be accepted

$$4(12) + 2(2(12) + 2(12)) = 48 + 96 = 144 > 108$$

No, it will not be accepted

b)

$$L + 2(9 + 9) \leq 108$$

$$L + 36 \leq 108$$

$$L \leq 72$$

So the greatest acceptable length is

72 inches

1.2

15) $\sqrt[5]{a^2}$	16) $x^{-\frac{5}{2}}$
25) a) $\sqrt{3}\sqrt{15} = \sqrt{3}\sqrt{3}\sqrt{5} = 3\sqrt{5}$ b) $\frac{\sqrt{48}}{\sqrt{3}} = \sqrt{\frac{48}{3}} = \sqrt{16} = 4$ c) $\sqrt[3]{24}\sqrt[3]{18} = \sqrt[3]{2 \cdot 2 \cdot 2 \cdot 3 \cdot 2 \cdot 3 \cdot 3} =$ $\sqrt[3]{2 \cdot 2^3 \cdot 3^3} = \sqrt[3]{2} \sqrt[3]{2^3} \sqrt[3]{3^3} = \sqrt[3]{2} \cdot 2 \cdot 3 = 6\sqrt[3]{2}$	34) a) $\frac{z^2 z^4}{z^3 z^{-1}} = z^{2+4-3-(-1)} = z^4$ b) $(2a^3 a^2)^4 = (2a^5)^4 = 2^4 a^{20} = 16a^{20}$ c) $(-3z^2)^3 (2z^3) = (-3)^3 z^6 \cdot 2z^3 = -54z^9$
40) a) $\left(\frac{x^4 z^2}{4y^5}\right) \left(\frac{2x^3 y^2}{z^3}\right)^2 = \frac{x^4 z^2 \cdot 2^2 x^6 y^4}{4y^5 z^6} = \frac{4x^{10} y^4}{4y^5 z^4} = \frac{x^{10}}{y z^4}$ b) $\frac{(rs^2)^3}{(r^{-3}s^2)^2} = \frac{r^3 s^6}{r^{-6} s^4} = r^9 s^2$	45) a) $\sqrt[4]{x^4} = x^{\frac{4}{4}} = x^1 = x$ b) $\sqrt[4]{16x^8} = \sqrt[4]{16} \sqrt[4]{x^8} = 2x^{\frac{8}{4}} = 2x^2$
50) a) $\sqrt{125} + \sqrt{45} = \sqrt{25}\sqrt{5} + \sqrt{9}\sqrt{5} =$ $5\sqrt{5} + 3\sqrt{5} = (5+3)\sqrt{5} = 8\sqrt{5}$ b) $\sqrt[3]{54} - \sqrt[3]{16} = \sqrt[3]{27}\sqrt[3]{2} - \sqrt[3]{8}\sqrt[3]{2} =$ $3\sqrt[3]{2} - 2\sqrt[3]{2} = (3-2)\sqrt[3]{2} = \sqrt[3]{2}$	62) a) $(4b)^{\frac{1}{2}} \left(8b^{\frac{1}{4}}\right) = \sqrt{4b^{\frac{1}{2}}} \cdot 8b^{\frac{1}{4}} = 16b^{\frac{3}{4}}$ b) $\left(3a^{\frac{3}{4}}\right)^2 \left(5a^{\frac{1}{2}}\right) = 3^2 a^{\frac{3}{2}} \cdot 5a^{\frac{1}{2}} =$ $45a^2 = 45a^2$
67) a) $\frac{(8s^3 t^3)^{\frac{2}{3}}}{(s^4 t^{-8})^{\frac{1}{4}}} = \frac{8^{\frac{2}{3}} s^2 t^2}{s^1 t^{-2}} = 4st^4$	67 b) $\frac{\left(32x^5 y^{\frac{3}{2}}\right)^{\frac{2}{5}}}{\left(x^{\frac{5}{3}} y^{\frac{2}{3}}\right)^{\frac{3}{5}}} = \frac{32^{\frac{2}{5}} x^2 y^{\frac{3}{5}}}{x^1 y^{\frac{2}{5}}} = \frac{4x}{y}$